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Table of Contents

Vol. 39, No. 9 — July 11, 1940

News Developments

Trends ... 27
Centralia Devonian Hits Peak; Decline Already Started ... *Harry F. Simons* 28
Sparks From the News ... 30
Mediterranean Oil Situation Becomes More Critical ... *J. P. O'Donnell* 31
Coming Months May Be North Texas' Most Active ... *R. Marne Sanford* 32
State Capitals ... 34
Editorial: A Challenge ... 35
H. L. Phillips Transferred to New York Office of Consolidated Oil Corp. ... 36
Gulf Names J. T. Goodman Vice President ... 36
Congress Likely to Remain in Session Most of Summer ... *Henry D. Ralph* 37
Gulf Coast Export Movement Shows No Improvement ... *Neil Williams* 38
International ... 39
California Reserves Maintained by Intensive Exploration ... *Roy M. Barnes* 40
Refinery Expansion and Natural-Gasoline News ... 42
Natural-Gas News and Pipe-Line Activity ... 43
Service on Active Fields—Stoltenberg Pool, Ellsworth County, Kansas ... 44
Programs and Meetings ... 46

Engineering—Operating

Gas-Liquid Equilibrium Constants; Methane-Decane System ... *H. M. Lavender, B. H. Sage* and *W. N. Lacey* 48
Depropanization of Butane ... *L. J. Coulthurst* 50
New Portable Rig Uses Torque Converter and 90-Ft. Folding Mast ... *T. P. Sanders* 53
Operating Ideas ... 53
Operating Efficiency Increased at Manvel by Standardization ... *Neil Williams* 57
Subsurface Pump Performance ... *S. B. Sargent* 58
Chart for Computing Gas Volumes ... 65
Suggested Field Practices—Low Producing Rates Waste Reservoir Energy ... *T. P. Sanders* 66
Progress in Metals ... *W. L. Nelson* 69

Field Operations

Field Operations Summarized ... 71
Illinois, Indiana, Kentucky ... 72
West and Central Texas and Panhandle ... *R. Marne Sanford* 75
Gulf Coast ... *Neil Williams* 76
Southwest Texas ... *F. L. Singleton* 78
Kansas and Missouri ... *Dal Dalrymple* 80
Oklahoma ... *Dal Dalrymple* 84
Louisiana and Arkansas ... *George Weber* 89
Among Drilling Contractors ... 90
Canada ... 92
Rocky Mountain Area ... *T. R. Ingram* 93
California ... *L. P. Stockman* 97
North and East Texas *R. Marne Sanford* 99
Michigan ... *Otto C. Pressprich* 104
Eastern Fields ... *Staff Correspondent* 105

Markets and Prices

Group 3 Market ... *H. Stanley Norman* 118
New York Market ... *J. P. O'Donnell* 119
A.P.I. Refinery Report ... 119
Tank-Wagon Market ... 120
Refinery Prices ... 121
Crude-Oil Prices ... 127

Additional Features

Personal Paragraphs ... 116
Equipment News ... 122
Classified Advertising ... 126-127
Advertisers' Index ... 128
Key to Abbreviations ... 107
Wildcats ... 107
Mississippi ... 114

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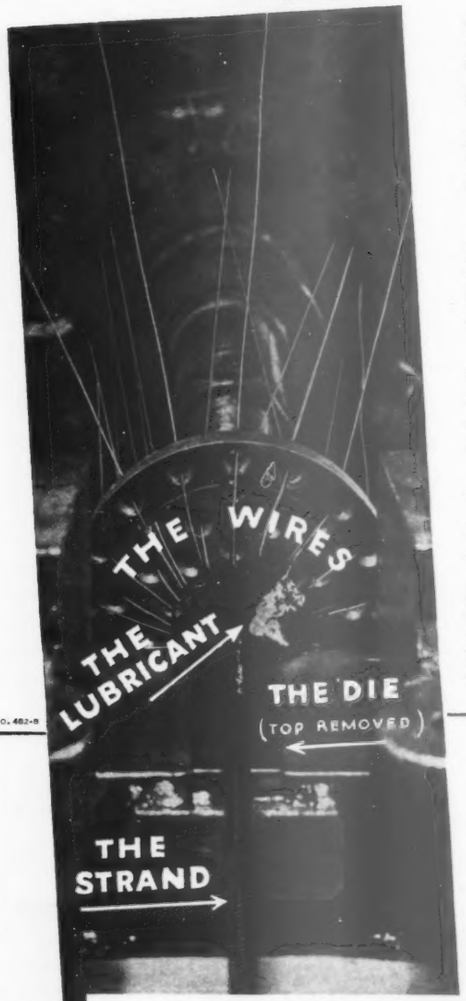
Wire rope internally protected by a lubricant that

sticks like molasses in January



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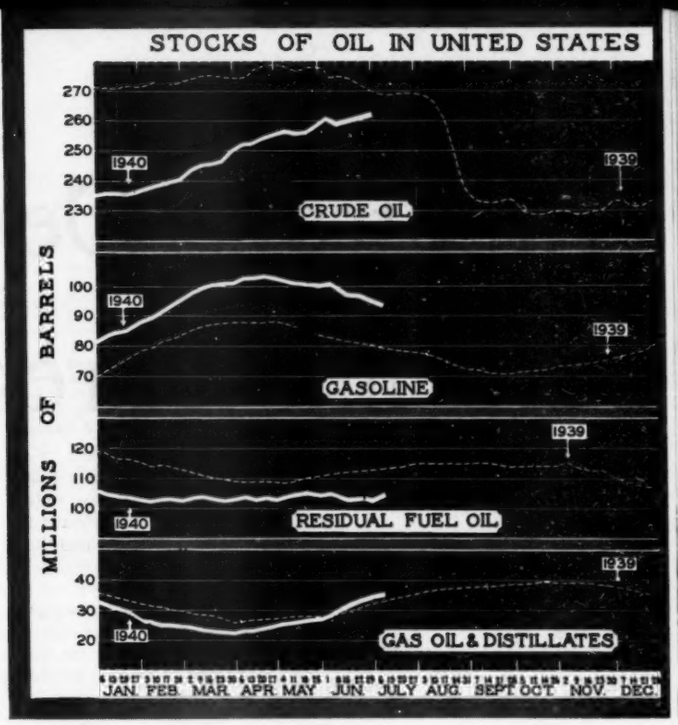
Trends

Crude Production Is Brought Within Estimated Demands



ALTHOUGH several states were still producing in excess of recommendations including their own allowables, crude-oil production last week for the first time in several months was brought within the estimated national demand. The development was particularly important in Texas which has been the center of market weakness in recent weeks. The Lone Star State's daily average output was 200,000 bbl. less than the Bureau of Mines' recommendation and in line with the level of production which has been projected for July and August.

CRUDE PRODUCTION *3,612,858 bbl. daily average—down 21,229 bbl. One year ago 3,542,725 bbl.*

CRUDE STOCKS *262,059,000 bbl. as of June 29—up 1,168,000 bbl. One year ago 271,567,000 bbl.*

GASOLINE STOCKS *93,275,000 bbl. as of July 6—down 1,867,000 bbl. One year ago 79,893,000 bbl.*

RESIDUAL FUEL-OIL STOCKS *105,343,000 bbl. as of July 6—up 857,000 bbl. One year ago 113,084,000 bbl.*

GAS OIL AND DISTILLATES *34,730,000 bbl. as of July 6—up 1,140,000 bbl. One year ago 32,435,000 bbl.*

REFINERY RUNS *3,575,000 bbl. daily week ended July 6—down 50,000 bbl. One year ago 3,420,000 bbl.*

While the reduced Texas production program has not been effective long enough to aid refinery products, observers were in agreement that a continuance of the curtailment over the next 60 days will materially strengthen both export and domestic markets.

The lower tanker rates also are tending to aid the Texas situation. When tanker rates doubled and tripled last fall after the war started, Texas lost both coastwise and export outlets. The fact that Illinois production was climbing rapidly aggravated this situation. For the first time in several years, pipeline connections to Atlantic seaboard refineries were placed in operation and regular shipments of Illinois crude were made replacing crude formerly shipped from Texas ports by tanker. It is understood that one large eastern refinery has dropped its pipe-line purchases of Illinois crude due to the availability of tankers and is resuming movements from Gulf Coast connections. It is also believed that this development will shortly also reduce the Illinois' pipe-line movement of crude to certain Canadian refineries. The present coastwise tanker rate for crude is around 30 cents per barrel.

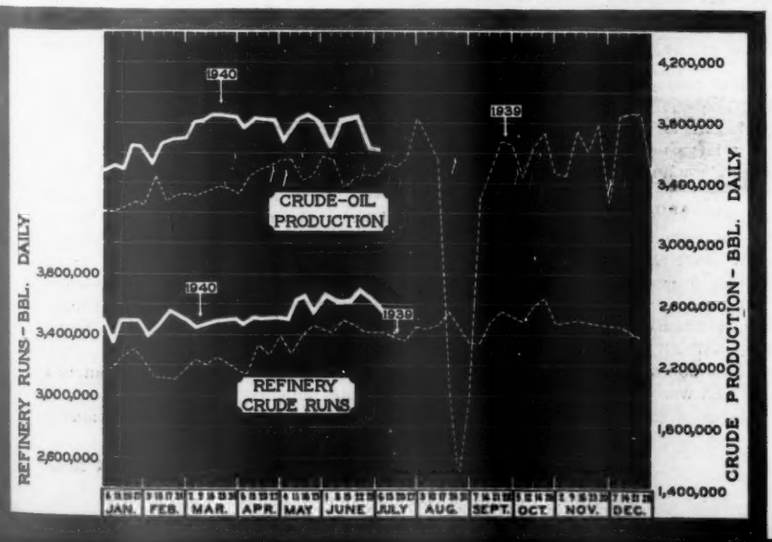
Outside the United States, Rumania and Iraq oil production is the center of attention. It is assumed that the critical situation that has developed in Rumania over the past 3 weeks will shortly mean a change in control of the oil production in that country, the largest European supply outside the U.S.S.R. Germany at this time is dependent on Rumania for practically all of its outside oil supplies.

DAILY AVERAGE PRODUCTION FOR WEEK

	July 6, 1940	Bur. Mines July est. of demand	July state allowables	June 29, 1940
Arkansas	71,325	67,400	71,310	72,350
California	631,150	593,900	587,000	597,250
Eastern states	106,250	103,100	.....	106,750
Illinois	504,486	402,300	.....	518,224
Kansas	182,450	159,400	.....	183,100
North Louisiana	68,385	.....	.....	68,205
Gulf Coast Louisiana	219,547	.....	.....	219,550
Total Louisiana	287,932	278,100	280,731	287,755
Michigan	55,913	61,600	.....	56,420
Mississippi	7,082	9,700	.....	9,650
New Mexico	107,340	106,100		107,340
Oklahoma	418,275	403,900	408,100	416,775
Rocky Mountain States	102,320	103,500	.....	97,990
East Texas	372,898	.....	.....	298,297
West Texas	177,848	.....	.....	206,398
North Central Texas	114,000	.....	.....	124,296
Texas Panhandle	59,596	.....	.....	61,247
East Central Texas	63,695	.....	.....	72,597
Gulf Coast Texas	273,000	.....	.....	325,448
Southwest Texas	77,298	.....	.....	92,200
Total Texas	1,138,335	1,339,400	1,300,000	1,180,483
Total United States	3,612,858	3,628,400	.....	3,634,087

With Great Britain and France no longer allies but enemies, control of Iraq's production becomes increasingly confusing. The two countries through controlled companies each own 23¾ per cent in the Iraq Petroleum Co., Ltd., operator of the Kirkuk field and the pipe line which in the past has delivered 80,000 bbl. of crude daily to Haifa and Tripoli terminals on the Mediterranean. Control of the operation at present rests with the British who are reported to have stopped deliveries to the French terminal at Tripoli.

Refiners found little of an encouraging nature in the week's developments. Domestic gasoline shipments are at an all-time peak but a continued high rate of production and excess stocks have brought additional weakness.



Centralia Devonian Hits Peak; Decline Already Started

Five drilling wells almost in a straight line. The well in the foreground is preparing to set casing through a coal mine

By HARRY F. SIMONS

CENTRALIA, Ill.—Completion of more prolific producing wells in the Devonian lime in the north end of the Centralia field forced that pool's output upward to a new high of approximately 123,000 bbl. per day for the week ending June 29. This establishes the Marion and Clinton county field as the third largest producing area in the United States.

Centralia will have to enjoy its glory while it can because all indications are that the decline has already begun, the production for the field during the past week being reported as 120,000 bbl. daily. Some indication of the slump is given by the active operations over the past 6 weeks, during which time wells drilling and rigging up have declined from a total of 78 for the last week in May to 44 at the present time; this includes 2 locations, 2 rigs, 38 drilling and 2 inactive tests. Completions during the same period have declined from 29 to 12; there were two first reports last week, indicating a further decline in activity.

Production for the week beginning June 1 was around 40,000 bbl. During the month it jumped approximately 83,000 bbl. or over 200 per cent to its present figure. All of the new production was obtained in the Devonian lime, which declines rapidly, and the drop in production during the succeeding weeks will probably be as rapid as was the rise.

The approximate production from the Devonian lime for the field, and the number of Devonian wells producing over the past 6 weeks is as follows:

CENTRALIA FIELD

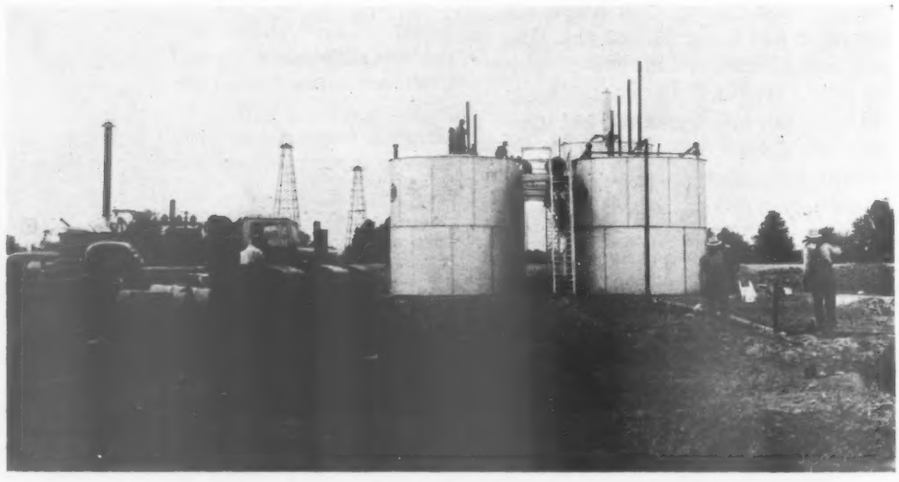
Week ending—	Production (bbl.)	Devonian wells
June 1	36,000	220
June 8	51,000	225
June 15	70,000	237
June 22	91,000	248
June 29	119,000	266
July 6	115,000	272

The field has a production from the Benoist sand of approximately 5,000 bbl. daily.

It is worth noting that in the early stages of the Devonian development in Centralia the production rise was not rapid and it appeared as though the field would not pass a peak of 30,000-bbl. daily average production. This was during the development of the townsite area in Sections 12, 13, and 24-1n-1w, Clinton County, and in Section 18-1n-1e, Marion County. However, when the drilling campaign moved northward into Sections 2 and 4-1n-1w, better wells were obtained and the production began to jump. In recent weeks there has been a large number of wells in the 10,000-bbl.-or-better class and the production has shot upward as a result. The most recent big completion and the present holder of "the record" is the Gulf Refining Co., eastern division, No. 5 Millard Felton, S½ NW SW NE Section 35-2n-1w, which flowed 11,820 bbl. from a total depth of 2,905 ft. A well almost as big was completed during the past week when Adams Oil & Gas Co.'s No. 17-D Copple, W½ NW SE Section 35-2n-1e, flowed an estimated 12,000 bbl. daily. The amount credited to the former well was actual production and not estimated.

For a time it appeared as if the productive limits of the Devonian lime would exceed that of the Benoist sand, which covered approximately 2,600 acres. However, the completion recently of a dry hole on the Gulf Refining Co.'s No. 1 Huffman, 518 ft. from the north line and 360 ft. from the west line of the NE Section 35-2n-1w, and the seven other dry Devonian tests in the area, indicates that the extent of the Devonian production will be approximately the same as that of the Benoist. About half of the productive area has been densely drilled and competitively produced and the decline has been very rapid. One operator in the townsite area owning three wells now has a total daily average production of only 69 bbl., an average of 13 bbl. per well.

In the north end of the field 20-acre spacing has been followed almost entirely and the decline in these wells has not been so rapid. However, the wider spacing has resulted in faster drilling of the field than would have been possible under closer spacing and at the present time there is not much undeveloped acreage remaining. In another month the drilling campaign will be over. The wells in the north end of the field have been produced to capacity or at the rate permitted by the pipe-line outlets. While nearly all the wells in the pool are making some water, from 1 per cent to 80 per cent, with an average of about 5 per cent, encroachment up to the present time has not given operators any serious concern.



Erecting tank battery and pipe-line booster station in north end of Centralia field

The Devonian lime in the Centralia field, while similar to the Devonian lime in the Salem field, has a good water drive and eventually the better producing areas here may recover more oil per acre than similar areas in the Salem field which had a greater pay thickness. Control of the water drive would have resulted in a higher ultimate recovery but this has not been possible under the present situation at Centralia.

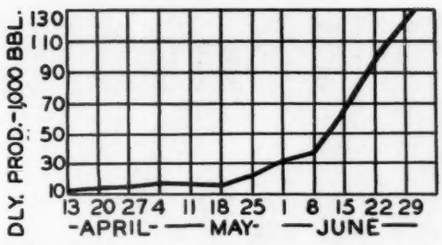
It is worth noting that the best Devonian production is being obtained from the area which enjoyed the best Benoist production, Sections 1

and 2-1n-1w and 35-2n-1w. There are also some Stein (Cypress) wells in the vicinity which were completed during the 1938 drilling campaign. The north end of the field has not been producing long enough to establish a definite decline curve, but enough wells have been produced sufficiently long to give a basis for an estimate.

All indications are that most of the wells will decline at the rate of approximately 200 bbl. per day after the flush production has been obtained from the well. A well making an initial of 6,000 bbl. daily will drop about 2,000 bbl. in the first 2 or 3 days and then at the end of another 10 days it will be down below 1,000 bbl. and will continue to decline rapidly until it is making less than 100 bbl. per day. The decline after that point is reached is much slower.

Many wells have declined to 10 per cent of their initial production in 10 days and get down to less than 100 bbl. per day in 2 months. It is estimated that during the first 2 months following completion two-thirds of the ultimate production from the Devonian is obtained. The initial production of the wells in the field totals close to the 200,000-bbl. mark and at the present most of the larger wells have been producing an average of 1 month. This means that they have already produced about one-half of the oil to be recovered and their present rate of production is about one-third of the initial. With fewer completions expected in the ensuing weeks, coupled with the effects of the decline of the wells, a drop in production is certain. Once the trend is reversed the field will fall off rapidly and will probably have a production of around 15,000 bbl. from the present developed producing zones by the end of this year.

The complicating factor in estimating production in the near future is the restrictions placed on production by the pipe-line outlets. Shell Oil Co., Inc., and Gulf Refining Co. each has its own pipe line from the field and they can produce to capacity while other operators are restricted as they must sell their oil to the pipe lines. In addition to Gulf's and Shell's runs from the field, Central Pipe Line Co., Allied Pipe Line Co., and Sohio Corp. are purchasing in the field.



Production curve for the Magnolia field, showing the rapid rise as large wells are completed in the north end of the field. Decline in production is expected to be as rapid as the climb

Effect of the Shell and Gulf pipe lines is shown in the following tabulations which gives the runs by pipe lines for May 15 and June 19:

Pipe line—	May 15 (bbl.)	June 19 (bbl.)
Aetna	2,731	1,228
Allied	3,324	3,427
Canyon	3,359	2,276
Central	5,775	18,326
Compton	69	69
Gulf	.....	38,723
Shell	.....	17,723
Sohio	10,966	18,583
Union	172	34
Total	26,396	99,939

Shell has ample outlet at its Wood River, Ill., refinery while Gulf ships its oil to Toledo and Cincinnati, Ohio. Sohio Corp. has an outlet through its gathering system into the Illinois Pipe Line Co.'s lines and through its own line from Salem to Stoy and on eastward to the Pennsylvania State boundary through the line which it purchased last summer from Tide Water Associated Oil Co. Central Pipe Line Co. belongs to the Allied Oil Co. of Cleveland, Ohio, and has outlets through refineries located at Canton and Findlay, Ohio; Flat Rock, Mich., and in Canada; shipments are made mostly through the Illinois Pipe Line and the Buckeye Pipe Line systems.

The price paid for the production has been set by the Sohio Corp., as $1.05 per barrel, but, despite the huge flush production, there is some oil being sold for $1.10 per barrel. On the other hand some operators are letting their oil go at a price considerably under $1 per barrel.

Trenton Discovery

The Trenton discovery in the Centralia townsite (The Oil and Gas Journal, June 20, 1940, p. 17) has engendered nothing but pessimism up to the present time and no new Trenton tests have been reported to date. The more conservative larger companies will probably wait if possible until a later date to start work on the Trenton production.

The independent operators in the townsite area are for the most part not financially able at this time to invest $35,000 to $50,000 in a Trenton well of doubtful productivity, so there is little danger of a development campaign being started. Many of the independent operators who drilled Devonian wells in the townsite area lost money and it is doubtful if they are anxious to play a repeat performance. Had the Trenton discovery been a better one it might have developed more enthusiasm and Centralia production might continue to rise instead of being headed for a drop as it is now.

While the two principal producing areas in the state (Salem and Centralia) are declining, the remainder of the state is increasing its production only slightly with most of the fields showing a decline. Principal increases have come from this year's discoveries, the more outstanding pools and their production being Boos in Jasper County (500 bbl. daily), Fairman in Marion County (500 bbl. daily), Dale in Hamilton County (1,200 bbl. daily), Iron in White County (4,000 bbl. daily), Lancaster in Wabash County (1,800 bbl. daily), and New Harmony in White County (1,000 bbl. daily).

In addition to the oil coming from the new Illinois fields, approximately 37,500 bbl. daily is being produced in the old Illinois fields, Indiana, and Kentucky. Production from old Illinois fields varies from week to week but recently it has been running between 10,000 and 12,000 bbl. daily. Approximately 10,550 bbl. daily is obtained from the new Indiana fields with the two principal fields being Griffin and New Harmony in Gibson County; the total from the Indiana area runs in the neighborhood of 12,000 bbl. weekly. Kentucky supplies around 13,500 bbl. daily, the bulk of which comes from the old fields plus about 1,000 bbl. daily from the Birk City field. Whenever a period of flush production prevails in Illinois, runs from the old areas are curtailed to some extent.

Fear of a shortage of oil to satisfy the 550,000-bbl. market which Illinois has developed over the past 3 years has led to an increase in activity in the state. Following is a list of first reports and active operations from June 5 to July 2, 1940:

Week—	First reports	Active operations
June 5	75	517
June 12	81	510
June 19	63	503
June 26	101	504
July 2	104	523

While there are a few idle rigs in the state, they are mostly awaiting the signing of contracts or the preparation of locations before they move and go to work. Approximately 300 rotary rigs and about the same number of cable-tool machines are at work or ready for work. The present pace will probably continue throughout the remainder of the year. At one time it was forecast that the deeper drilling in Illinois would result in fewer wells drilled but this has not been the case to date as completions are running about 6 per cent ahead of last year.

Right: These seven flares are used to burn gas from the largest well in the field, recently completed on the Gulf Refining Co., eastern division, Millard Felton lease in Section 35-2n-1w

Below: Photograph taken at night illustrates intensity of illumination due to flares

SPARKS . . . FROM THE NEWS

QUESTION: Will Rumania's oil be nationalized; will it be taken over by the Soviets, or will it be acquired by Germany as its only important oil supply at this time?

CONFUSION: Indicative of the confused European situation, oil shipments which left the Gulf Coast last month for France, have been seized by the British as contraband.

RIGHTING A WRONG: Action of the Texas Railroad Commission in cutting that state's July allowable over 100,000 bbl. below the Bureau of Mines' figures may offset its action earlier in the year, which resulted in millions of barrels going to storage.

AGAIN: Illinois' production declined last week and the prophets are again busy saying that the peak has been passed despite the fact that past experience has shown that projections regarding Illinois oil are as hazardous as weather predictions.

GEORGIA REVIVAL: The extensive soil-analysis survey being conducted in the Waycross sector of Georgia is reported to be responsible for major oil companies paying rentals and restoring hundreds of thousand acres of surrendered leases.

GASOLINE IN WAR: Someone has estimated that one day's operation of a fleet of bombing and pursuit planes in Europe's mechanized forces necessitates the consumption of enough motor fuel to operate 3,000 American passenger cars for a full year. Comparatively a small factor in gasoline consumption.

CAUSE FOR HOLIDAY: A Gulf Coast exporter remarks that there used to be a harbor full of foreign flags at Corpus Christi nearly all the time, but now the city almost declares a holiday if a foreign boat comes to port.

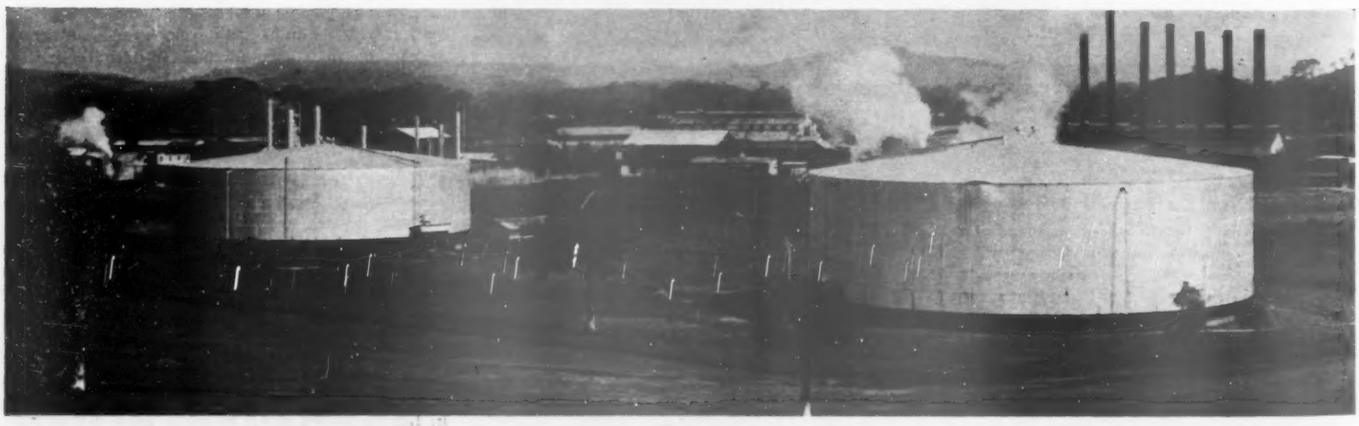
WARMING UP: The heat is on in southeastern Nebraska but summer cannot be blamed; a second discovery in Richardson County and successful developments near Falls City are causing the oil men to run temperatures.

UNDER WAY: The long-predicted expansion in natural-gas systems apparently is under way. Recently two companies filed applications with the Federal Power Commission for major lines—one extending north to the Middle West from the Texas Panhandle and the other from Louisiana to Tennessee and other states.

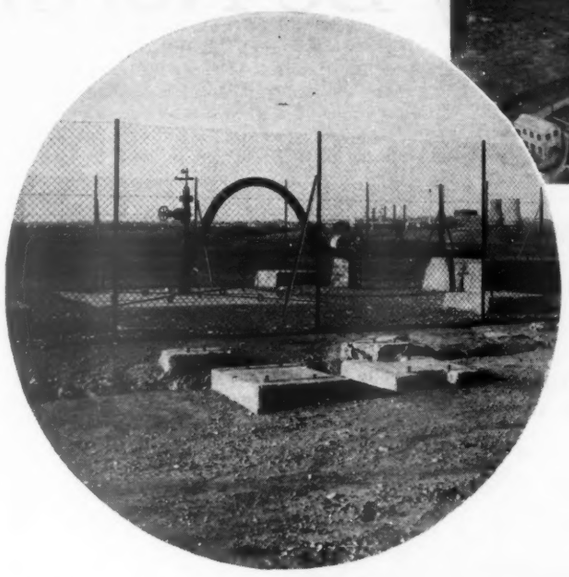
PREPAREDNESS: Announcement of the Defense Advisory Commission's Dr. R. E. Wilson that the oil industry is prepared to meet any national emergency—to the extent of a "fully mechanized" army—should act to allay fears of governmental bodies seeking to place the industry under federal control.

NO CLAIM: The oil industry's claim on the Republican candidate for president was short-lived. Referred to in the nominating speech as an erstwhile tool dresser in the Texas oil field, Mr. Willkie said last week it was all a mistake. His Texas activity was with a railroad gang looking for water.

WESTERN HEMISPHERE TAKES SPOTLIGHT IN FAST-CHANGING OIL PICTURE . . .



The future oil policy of Mexico is involved in the presidential election held Sunday, the results of which have not yet been announced. The photograph shows a general camp view of the Poza Rica field, largest in Mexico, and one of the largest oil reserves in the world



Right: Stanlow oil docks at Ellesmere Port, England, which are located in a recently bombed area. Below: Typical producing-well hookup in the Kirkuk field, Iraq, source of supply for the Iraq pipe line

Mediterranean Oil Situation Becomes More Critical

By J. P. O'DONNELL

NEW YORK, July 9.—The fast-changing status of Rumania, Europe's principal oil-producing and refining country with the exception of Russia, has further complicated the already highly complex world-petroleum picture with respect to the war. Until recently Great Britain was taking the bulk of the Rumanian oil exports, apparently not only to supply her own needs but, and equally important, to prevent Germany from acquiring these supplies.

The shipments to Great Britain were reportedly terminated with Italy's entrance into the war and the subsequent closing of the Mediterranean. Russia's acquisition of Bessarabia and with it control of the lower Danube and Rumania's principal seaport, Constantza, gave the Soviets apparent command of Rumanian oil. This conception was blasted by later reports of King Carol's appointment of a strongly pro-Nazi cabinet, the expulsion of British oil men and the announcement from Berlin that Adolf Hitler had assumed a "protective" interest over Rumania.

The trend of Rumanian oil exports in the first 7 months of the 10-month-old war are given in the following table. It will be noted that Great Britain vastly improved her position at the expense of Germany before the events of the past few weeks completely reversed their roles. The present status of Rumanian oil exports is open to question since, while the Axis powers may have gained control of production and refining, the extremely serious problem of transportation remains.

RUMANIAN OIL EXPORTS

(Metric tons)

	Great Britain	Germany
1939—		
September	33,974	46,759
October	29,772	61,122
November	37,010	59,183
December	139,880	50,889
1940—		
January	118,956	18,455
February	75,536	20,291
March	122,504	36,508

In March, the last month for which data are obtainable, Great Britain took 41 per cent of Rumania's petroleum exports, while Germany got but 12 per cent. Other principal destinations of Rumanian exports were Bohemia and Moravia which took 8,289 metric tons in March, about one-third of their average during the first 4 months of the war, and Italy which got 21,462 tons, less than one-third of its average in the September-December period.

The new pro-German cabinet took immediate steps to prevent possible sabotage in the Rumanian fields by immediately ordering the expulsion of Englishmen, particularly those affiliated with companies operating the fields, according to press reports. It was reported that 28 Britons with oil-company connections were given 48 hours to leave the country. The concern of the pro-Axis government for the oil fields is taken as further support for the belief that oil is Hitler's Achilles heel.

In pursuit of this belief, British airmen continued their attacks on oil refineries and depots. Among refineries claimed to have been damaged or destroyed is the 5,000-bbl. plant of Deutsche Erdol Raffinerie A.G. at Misburg, Germany, which has a cracking capacity of 2,500 bbl. per day and as such is one of the Reich's most important refineries. Also reported last week was a new technique in destroying storage. British airmen reported the use of tracer bullets which not only pierced the tanks but also set their contents afire.

Iraq Seeks Aid

Intimations of a new turn in the war for oil were received from Istanbul where informed Turkish quarters expressed fears of a Nazi-inspired drive against Iraq. Iraq is reported to have already asked what aid she could expect from Turkey in the event of aggression by Iran which is reported to have shown decidedly pro-German inclinations.

These reports of possible trouble brewing in the Near East were given further credence later in the week when it was reported that shipments of oil through the Kirkuk-Tripoli line through Syria had been suspended and that henceforth they would be confined to the line terminating in Haifa, Palestine. This action was taken, according to reports, following the capitulation of the French commander in Syria. This line supplies the Consolidated Refineries, Ltd.'s 40,000-bbl. per day refinery at Haifa, the output of which is now doubtless fueling the expanded British Mediterranean fleet and Near East army.

Further indications of impending Near East action were seen in a British Broadcasting Corp. report that Soviet Russia had closed three of her Black Sea ports including the oil port of Batum, western terminus of the pipe line from Baku. It was regarded as probable that one of the other two ports reported closed was that of Taupse, one of the western terminals of the line from Grozny. Both Batum and Taupse are equipped with tanker terminals. Whether this action is groundwork or camouflage leading to another Soviet coup like those by which Russia gained control of several Baltic states and Bessarabia is a matter of conjecture.

Soviet Results Below Expectations

It is known that results achieved by the Soviet oil industry in the first few months of this year were well below expectations and there is the question if the country is satisfied with its immediately available reserves in view of the potentialities of the Balkan situation. A possible further drain in Russian oil supplies is seen in the ratification of a treaty with Finland, by which Russia has agreed to supply Finland with oil products. At the time of the signing of this treaty it was also learned that Finland had granted Sweden the right to use one of her Arctic ports which may result in a very minor stimulation of our oil exports to that country.

Since Germany has taken over the entire west coast of France as far south as Spain, there has been some speculation regarding the ultimate destination of Spanish imports of petroleum, scrap iron and other war supplies. Two tankers, under Panamanian registry, left this country for Spain last week. However, such shipments are not extraordinary and the sailing of the two vessels attracted attention only because of London's apprehension regarding the final destination of their cargoes in view of the friendly relations that exist between Franco and Hitler.

A large part of the petroleum exports to Great Britain now are reported to be routed via Halifax where, it is said, considerable tankage has been erected since the beginning of the war. Except in isolated places, Great Britain has replaced as much as possible of its aboveground storage with underground facilities in order to reduce possible losses by air attack, according to this report. A secondary part of this program is to make Halifax a principal storage point.

The advantages of such a plan to the British are obvious. In the first place aboveground storage, an inviting bomber target, is obviated. In the second place, storage of oil products at Halifax brings the principal source of supply much closer

(Continued on Page 33)

Coming Months May Be North Texas' Most Active

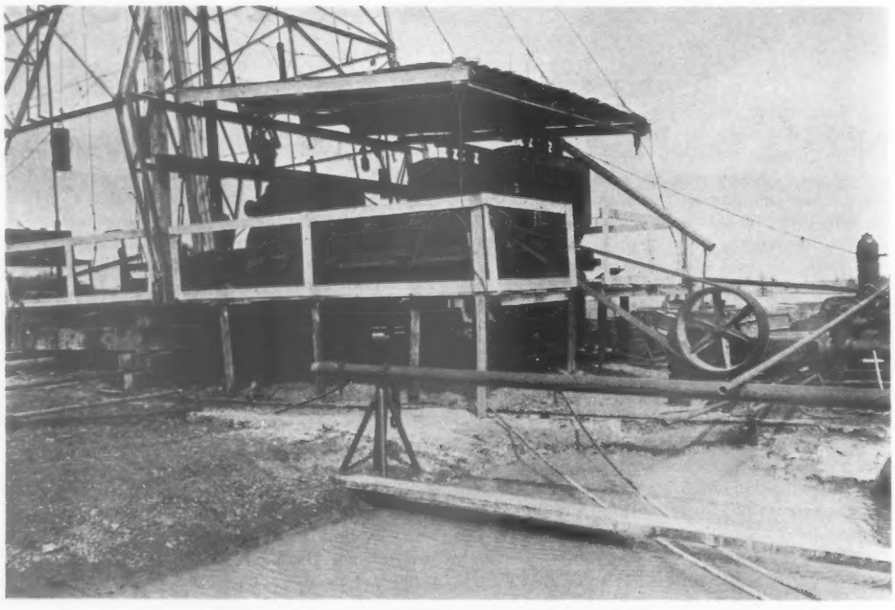
By R. MARNE SANFORD

Exploration of the Fort Worth syncline in North Texas, which was started in the early spring of this year, is steadily gaining momentum as these new fields are developed.

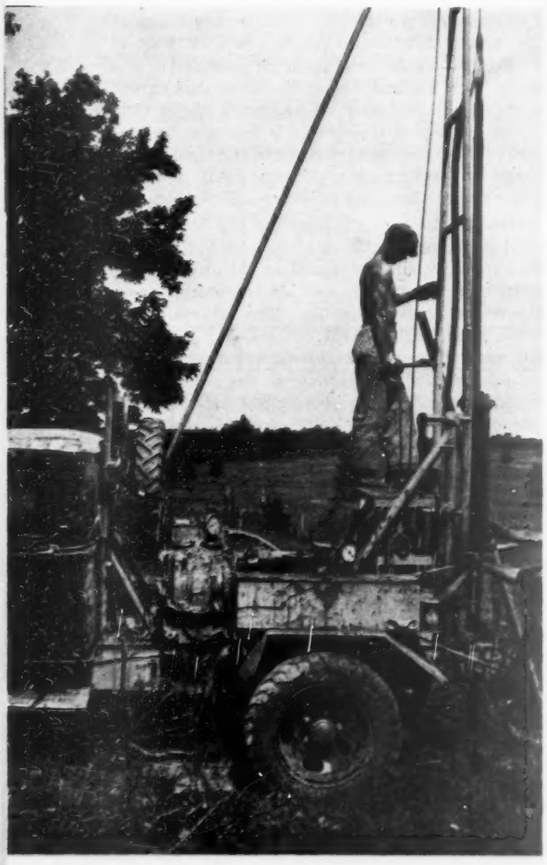
FORT WORTH, Tex.—With no letup yet noticed in North Texas' 6-month-old Fort Worth basin exploratory campaign, the northern tier of Texas counties passed into the second half of 1940 facing one of its most active periods since the 20-year-old shallow "boom" days in Wichita County.

Wildcatting still continues at a rapid clip throughout Montague, Clay and other counties bordering the Fort Worth basin. The Hull-Silk field in northern Archer County is rapidly proving earlier predictions of being the area's most important discovery since K.M.A. A recently discovered oil-producing horizon in the Ellenburger lime of Ordovician is yet undeveloped and undefined at 4,400 ft. in the K.M.A. field itself. On the whole, the North Texas area is headed for what is believed by many to be an intense and extensive deep-drilling and exploratory program as a follow-up of several deep discoveries throughout the entire area over the past 3 years.

Contrary to the assumption by some that North Texas' recently inaugurated Fort Worth basin play is a sudden new deep-drilling program, ever since the discovery of the K.M.A. field which was followed by the opening of the Hull-Silk field, North Texas has been advancing toward a deep "boom" period. Borne on the tide of increased and widespread deep drilling over all of North Texas during the past 4 years, the Fort Worth basin is only the first of many deep regional structures expected to be explored during the coming months.



A well being completed in the 3,850-ft. granite wash of the Benton & Holmes field about 5 miles northeast of the town of Bonita in Montague County



Crew drilling shot hole for seismograph exploration in the Forth Worth basin area

Regional Structural Conditions

Few other districts offer the possibilities that does North Texas. Shallow oil fields producing from 1,000 and 2,000 ft. which were developed between 1919 and 1936 established certain structural features for the area. It was learned that fields from the Johnson area of western Foard County to the Burkburnett field in Wichita County, the Petrolia in Clay County and the Nocona in Montague County, were all producing from structural conditions relative to the Red River uplift. Virtually all over Archer County are shallow, now semidepleted fields whose production was relative to the stratigraphic conditions on the north emergence of the Bend arch. The Bulcher, Muenster, and Anderson-Kerr fields of Cooke County all produce from conditions relative to the Muenster arch, or "buried mountain ranges," of recent Fort Worth basin recognition.

All fields developed on or relative to these regional structural features, paved the way to the discovery of deep fields, literally on top of the old shallow ones. Oil in these deep fields was found in accumulation traps which were merely depth intensifications of the shallow producing structures. This fact was first borne out when the discovery well found oil in the now well known K.M.A. field. The first deep test was drilled early in 1931 by Deep Oil Development Co. on the Munger lease. By the middle of July 1931 there were four outposts which had topped the "characteristic 3,800-ft. sandy lime," as the Strawn pay zone was then called. Operators in the area had just received a boost in crude prices from 20 cents to 40 cents per barrel. The development of a new field from a little known horizon as deep as 3,800 ft. with a posted crude price of only 40 cents per barrel was not rapid. Consequently little was known of the true magnitude of the K.M.A. field until it assumed statewide importance in 1936 and 1937.

The discovery of Hull-Silk field in northern Archer County in March 1938 set off the first real spurt of deep drilling in the district. Since that time deep exploration and the development of deep fields has been as destined as fate.

Montague County Leading

Since the discovery of five new oil fields from deeper levels on the northwestern rim of the Fort Worth basin in western Clay County during 1939, the exploration has spread eastward into Montague County. At the present time this coun-

ty is leading the wildcatting and exploratory work of the district. Closely following the opening of new pools near Ringgold and Bonita, a new field was found last week just east of the town of Nocona and about 1½ miles east of the three-pay Rogers & Rogers field.

This latest discovery is testing from the typical conglomerate pay drilled by other recent Montague County discovery wells. It is Sinclair Prairie Oil Co.'s No. 1 Benton, Thomas R. Jackson Survey. The well made 81 bbl. of oil in 30 minutest last week. Testing continues in the pay from 5,127-37 ft.

Montague County's discovery just west of Bonita by Sinclair Prairie Oil Co.'s No. 1 Howard has developed into a promising oil field. The second and third tests to be drilled in the field were both failures in the discovery 5,200-ft. zone. Deeper drilling proved the Ellenburger lime to be also barren. Failure appeared certain for the wells, and this would have seriously dampened further development in the area. The two wells, however, were plugged back and both were completed for daily potentials exceeding 1,000 bbl. from the 5,400-ft. level, about 200 ft. below the discovery horizon. A drilling program was started for the field by several operating firms and at the present time a good field is under development.

The month following the Bonita discovery, March, W. B. Omohundro opened the Seay field 4 miles south of the town of Ringgold in the extreme western part of the county. Three wells are in at the present time and a possible 4-mile northeastern extension is testing. Whether it will prove a part of the Seay field or a new discovery is not known. Geology of the Seay field has shown it to be situated on the flank of a large structure expected to embrace some 15,000 acres. The Worsham area west of the field and in eastern Archer County is correlated some 400 ft. higher, structurally, than the Seay field, yet both are believed to be located on the same large structure.

It is believed by some geologists that a number of fields may be opened on the 15,000-acre structure, production being from any one of five known pay levels in the area. The Sinclair Prairie Oil Co.'s No. 1 Milam, the outpost northeast of the Seay field, is thought to be a discovery of this nature on the large structure.

Fort Worth Basin Activity

During the early part of the summer the active leasing throughout Clay, Montague, Wise and Tarrant counties, part of the Fort Worth basin, materially subsided. This, however, did not mean that the play had ceased. Thousands of acres of prospective oil property were leased throughout as many as eight different counties by major companies and independent operators alike. Immediately following the wake of the leasing came the geophysical crews. Blocks taken early in the play throughout Montague and Clay counties have already been geologized and many are awaiting only the moving in of a rotary rig for a deep test.

The southern part of the basin is still undergoing geophysical exploration. Fences, posts and trees along county roads and main highways throughout Wise County, Jack County, and eastern Parker County are literally decorated with red, green, yellow and white "flags" of seismograph and field mapping crews. Many tentative locations have been staked throughout Wise County and northern Tarrant County and drilling will depend on the results of geophysical exploration.

Other North Texas Deep Fields

Not only does the Fort Worth basin play offer indications of deep-drilling activity for the coming months, but many of the recently discovered deep fields in the district are neither defined nor drilled up. Scheduled for most of the activity is the Hull-Silk field of Archer County. The field now has 295 producing wells from five different pay levels and its daily average production has grown to exceed 8,000 bbl. It is not wholly defined in any direction and hundreds of locations remain to be drilled.

The Walnut Bend field, opened in June of 1938, has proven to be one of the most productive of North Texas deep fields. More than 35 deep wells have been completed and it is being steadily expanded to cover more proven acreage.

The Rogers & Rogers field just outside the town of Nocona in northern Montague County, opened last year, has three productive levels and is being rapidly developed and expanded. Many already proven locations likewise remain to be drilled in the Rogers & Rogers field. Sinclair Prairie Oil Co.'s No. 1 Benton, about a mile east of the field and indicating a new field from a new horizon, may prove to be a part of the field at a later date.

On the whole, despite the fact that all but four of the deep tests drilled in North Texas during the past 6 months have been failures, invaluable geological data have been accumulated which will tend to control the exploratory drilling during the coming months.

Sinclair Prairie Oil Co.'s No. 2 Howard, the second well drilled in the Bonita field just outside the town of Bonita in Montague County. This well missed the 5,200-ft. conglomerate pay and was completed from the 5,400-ft. level

Mediterranean Oil Situation Becomes More Critical

(Continued from Page 31)

to England since three convoy trips can be made between Halifax and the British Isles while two are being made between England and the nearest United States oil port. In the third place with supplies more readily accessible, and with stocks reduced, less money is tied up in one essential war material at the possible expense of others.

It was also made known during the past week that no more statistics on petroleum production or exportation will be available from Trinidad, British West Indies, under recently established war regulations. Unofficial reports are that Trinidad's production has been increased to close to 2,000,000 bbl. per month. Asphalt operations, however, one of the island's principal industries, are reported virtually shut down. The country produced 19,265,000 bbl. in 1939.

Last week's marine news included the report of the British tanker Acadialite going ashore off Cove Island during a thick fog. The ship was reported to have been badly damaged and to have lost more than half its cargo.

Coastwise-Tanker Rates Continue to Decline

NEW YORK.—Rates on tankers in coastwise service continue to settle. Spot demand for dirty tonnage is practically ended for duration of the summer and clean boats are available at rates 31 cents below the top of 66 cents established last fall.

Fixtures of dirty boats were reported at a range of 25 to 27 cents during the past few days compared to a top of 62 cents in the winter season. Boat owners do not anticipate any improvement in rate conditions until the fuel-oil consuming season opens next fall. Normally the boat rates start moving upward in September continuing through the fall and winter. American boats became more freely available upon Italy's entrance into the European War. This was partially due to displacement of American tonnage in service to Spain and Latin American ports by boats of European registry that could no longer safely enter the Mediterranean and western European ports.

The rates on dirty boats have declined by a wider margin than on clean tonnage because more of that class are currently in positions for immediate loading in addition to this being the off season for fuel oil.

STATE CAPITALS...

LOUISIANA

THE LOUISIANA SENATE last week approved a floor amendment to the proposed constitutional amendment reducing fees for motor-vehicle licenses, so that the 1-cent gasoline tax allocated to the Welfare Department will henceforth go to the Highway Department. The bill, which was sent to the legislative bureau for technical corrections to make it ready for final senate passage, reduces automobile licenses to a flat $3 and cuts in half the truck license fee. Some senators first opposed the amendment on the ground that it might add an extra 1-cent tax to the present state tax of 7 cents. Sen. Frank Ellis, administration leader proposing the amendment, however, explained the amendment would not increase the total tax but merely transfers the 1-cent tax to the Highway Department. The Welfare Department, he said, in the future would be cared for in the biennial appropriations bill.

TEXAS

AS A FURTHER STEP to pinch Texas' oil production within estimated market demand the Railroad Commission last week added two more shutdown days for July and August, increasing the number of holidays to seven in each month. Addition of these two shutdown days monthly is expected to cut the daily allowable about 80,000 bbl., or to an average of about 1,235,000 bbl. The commission also made permanent its recent temporary order returning the East Texas field's method of proration to 2.32 per cent of hourly potential. The basic allowable for this field was lowered, but the number of shutdown days was decreased from 14 to 7 days thereby increasing the daily average production. Chairman Lon A. Smith and Commissioner Jerry Sadler signed the two orders.

In an effort to hold Texas' production within what it considers to be actual market demand, the commission has reduced the allowable 109,600 bbl. since May 18 and 125,000 bbl. since June 15. This places the current daily average allowable 103,451 bbl. under the Bureau of Mines estimated market demand figure of 1,339,400 bbl. for July. Previously the commission had ordered shut downs on the four Sundays of July and August, and July 4 and August 1. The added shutdown days are on July 10 and 20 and on August 8 and 30. Following is a comparison of district allowables as of July 6 and June 15:

District—	July 6 basic	July 6 average	June 15 average
Southwest Texas	247,920	196,981	248,962
Gulf Coast	226,598	177,694	221,718
East Central	83,445	65,586	80,341
East Texas	522,712	406,080	370,614
West Central	52,223	44,381	50,182
West Texas	224,997	177,374	213,657
North Texas	117,816	101,672	112,749
Panhandle	83,794	66,181	62,741
Total	1,559,505	1,235,949	1,360,964

Return to the hourly potential basis of allocation in the East Texas field resulted in giving that field the only increase in allowable. On May 18 the daily allowable was 378,387 bbl., on June 15 it had dropped to 370,614 bbl. but due to the change in method of proration last Saturday it had been raised to 406,080 bbl. The Panhandle July 6 allowable was higher than on June 15, but was 5,996 bbl. below the May 18 total.

AT THE EAST TEXAS HEARING held in Kilgore last week many operators urged that acreage be taken into consideration in the field's proration formula, claiming that the potential method was little better than a straight per-well allocation formula. Pleas for a formula that would offset the drainage, through migration up structure, of west-side leases were also heard. Hines Baker, attorney for Humble Oil & Refining Co., condemned the potential method as one that deprived his company of its proper share of oil. Following an argument with Commissioner E. O. Thompson on the interpretation of the Rowan & Nichols Oil Co. decision, as recently handed down by the Supreme Court, Mr. Baker stated the Supreme Court had misstated the facts and misinterpreted the Texas laws.

Declaring that "this is not the final round in the Rowan & Nichols case," Mr. Baker stated, "You may be safe in a technical sense, but you are not just. The Supreme Court has not said the potential order is just or equitable; they are just going to fold their hands and do nothing about it."

The order was protested by Charles A. Lester, of Lester & Duffield, Dallas, who petitioned the commission to end "rank discrimination against west-side wells." Representatives of Cities Service Oil Co., Arkansas Fuel Oil Co. and Gulf Oil Corp. also objected to continuation of the order on grounds that it favored densely drilled tracts.

The commission order issued subsequent to the hearing, however, made the restored potential order permanent and boosted the allowable about 36,000 bbl. daily. The order also stipulates that no well shall be cut below 20 bbl. daily if capable of producing that amount. This, of course, was made possible by the adoption of seven producing holidays.

ON THE ISSUE OF ESTOPPEL the third Court of Civil Appeals last week reversed and remanded for trial a Rule 37 case styled Stanolind Oil & Gas Co. versus Midas Oil Co. It was the second appeal of this case, and because of this fact, the court confined its discussion largely to the one issue of estoppel, that appearing to be the only new issue raised. Involved is a second well on a 2.14-acre strip in the East Texas field. The court stated in part:

"The only remaining question is that of estoppel. The issue of confiscation, that is, whether the owner of one tract, through the wells on his land, is enabled to produce more than his fair share of the oil by draining it from beneath his neighbor's land, primarily involves private-property rights between them. That being true, as between them, the doctrine of estoppel becomes applicable. As between Stanolind and Midas, each had its clear legal rights; the one to drill under the permit, the other to sue to set aside.

"Can the Stanolind, whose primary interest and objective in bringing such suit to protect its own property rights, sit silently by for 4 months after such permit is granted, apparently acquiescing in its presumed validity, until the holder thereof has, as he had the clear legal right to do, incurred heavy expense towards drilling such well, and then be permitted to assert that drilling it will injure Stanolind's property rights? Such situation was manifestly what the Supreme Court had in mind, if not in fact the former appeal herein which had been before it on application for writ of error, when the question of estoppel was discussed in the Gulf Land case.

"On the second trial, the defendants pleaded estoppel. Manifestly that constituted an affirmative defense. And when the appellant showed, as it clearly did, that the permit was arbitrarily granted by the commission, it was entitled to have it set aside unless the Midas by pleading and proof showed that Stanolind had, by its own conduct, become estopped from doing so. This burden as an affirmative defense clearly rested upon Midas.

"Appellee did not by proof undertake to show estoppel as against an invalid order. Its motion for instructed verdict was predicated upon the contention that the plaintiff had failed to discharge the burden of proof. This was the ground upon which the trial court based his judgment and the issue of estoppel was not adjudicated.

"What constituted a reasonable time, none being fixed by statute, in which a protestant must act in suing to set aside such permit; and whether an unreasonable delay in doing so had damaged the holder of such permits, are fact questions to be determined under all the facts.

"Since the trial court erroneously rendered judgment in favor of defendant without requiring it to make any proof on its affirmative defense of estoppel, a defense available even on an invalid permit, we think it should be permitted to have that issue determined. The judgment will be reversed and remanded for trial upon the issue of estoppel. If that be determined against the defendant, Midas Oil Co., then judgment should be rendered for plaintiff. If it be determined in favor of the defendant, then judgment should be rendered against the plaintiff."

OKLAHOMA

OKLAHOMA PRODUCERS and crude-oil purchasers have been asked to attend conference with W. J. Armstrong, chief conservation officer, for Friday, July 26, to discuss market demand for the month of August. Whether the Corporation Commission will be asked to issue another 90-day order will be discussed at that time. A canvass will be made to determine whether demand has fluctuated in the various fields. Formal hearing on market demand and allowables will be held by the commission at an afternoon session. Beginning May 1 the commission fixed the state allowable at 408,100 bbl., which was the Bureau of Mines estimate for demand; the bureau's estimate for June was 408,600 bbl. and for July 408,900 bbl.

CALIFORNIA

THE SPECIAL COMMITTEE appointed by the Central Committee of California Oil Producers, official curtailment group, to select a candidate for oil umpire to succeed Lawrence Vander Leck who resigned a few weeks ago has held several meetings and has succeeded in narrowing the number down to about five probable successors. The committee has been attempting to find a man who will prove acceptable to both majors and independent operators as the candidate must have the full cooperation of both groups to make a success of the undertaking. Although no announcement has been made by the committee in charge of nominations it appears quite likely that the committee will recommend separation of the positions as oil umpire and chairman of the central committee which Mr. Vander Leck undertook to manage prior to his resigning. It is generally believed that the duties of both jobs are too arduous for one man to undertake and many also believe that the oil umpire should be primarily an executive to carry out the policies laid down by the central committee. This latter position is important because the central committee is composed of the chairman of the various field committees plus a few members elected at large. This central committee was designed along this line to make it fully representative and it is quite likely, therefore, that the new nominating committee selected to make a recommendation for a new umpire will name a candidate for oil umpire and then recommend that some member of the existing committee be named as chairman of that body.

MICHIGAN

THE STATE CONSERVATION DEPARTMENT has announced for August 2 an auction of oil and gas lease rights on 19,000 acres of state-owned lands in Gladwin, Clare, Missaukee, Roscommon, Wexford, Ogemaw, Isabella, Mecosta, and Osceola counties. Included is 120 acres in Gladwin Township, Gladwin County, adjoining a tract on which Sun Oil Co. now is drilling a test.

the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

A Challenge

The daily Washington dispatches tell of the millions being spent in the initial stages of the largest defense program ever conceived by a country at peace.

All industries are endeavoring to interpret what these expenditures—to total billions in the near future—will mean in their operations. In petroleum some are wondering if the enlarged military demands will not be the answer to the industry's present overproduction.

So far as war itself is concerned the past 10 months in Europe should dispel any preconceived opinions that warring nations consume more petroleum. While modern military machinery does require large quantities of petroleum, European developments have shown that civilian use can be curtailed to offset war requirements.

The position of a country engaged in a large-scale defense program is similar in many respects to that of one carrying on a war. Labor and capital in both instances have to be diverted from production of peacetime commodities to build and man military organizations.

Compulsory military service as now proposed for this country may mean that three or more million young men will be in training at all times. Their motorized military equipment and transportation facilities will require large quantities of petroleum, but the per capita consumption of these men would be much greater if they were employed in the shops, on the farms, or in trade.

It is true of course that the large defense outlays probably will raise general business levels and this always tends to expand petroleum consumption. The increase in domestic consumption over the past year is partly a reflection of the industrial activity for which the war orders of the Allies were responsible.

Far more important to the petroleum industry than these temporary developments is the possible long-range effect which a mammoth defense program may have on our standard of living. Most of the petroleum consumption in this country is accounted for by the family car and oil-burning heaters plus the requirements of industry and transportation which, because of their operating efficiency, can afford to use the superior oil fuels for power.

Basically, all this is a reflection of the earning power of free enterprise in a country where emphasis always has been placed on constructive and not destructive accomplishments and where in the past costs of government were not burdensome.

This high standard of living, which is not approached in any other part of the world, is not unassailable and excessive governmental expenditures are a threat to its continuance.

The federal Government in recent years has spent billions annually in economic experiments which are a direct charge against this country's ability to produce at low costs. This ability has made necessities here of products including petroleum which are luxuries elsewhere.

To support these economic flights of political theorists, nine-billion-dollar federal budgets have been necessary. Tax burdens have been greatly increased but they have failed to balance outlays by one-third. Now several billion dollars are to be added for military purposes, with at least 13 billion dollars assured for this fiscal year.

Anyone who has followed international developments in recent months will agree to the need of adequate defense for this country. The challenge here is to see that the defense program is well planned and that funds are wisely expended. Economies elsewhere are mandatory and the profligate spending of past years must end.

The oil industry is the largest taxpayer. It is the industry which has profited most from the American way of living. It has a major responsibility in restoring order in the governmental house.

H.L. Phillips Transferred to New York Office of Consolidated Oil Corp.

HENRY L. PHILLIPS, of Tulsa, president of Sinclair Prairie Oil Co. since it was organized in April 1932, as the chief operating subsidiary of Consolidated Oil Corp., is scheduled for transfer to the New York office of the holding company where he will assume a post in the executive department. The specific position to which Mr. Phillips will be promoted in the recent changes in high offices of Consolidated has not been announced.

Transfer of Mr. Phillips is one of the moves caused by the recent resignation of C. E. Crawley, vice president of Consolidated in charge of domestic production and pipe-line operations and the more recent retirement of H. R. Gallagher, president of the parent company.

HENRY L. PHILLIPS

Rose Through Legal Channels

Legal training and experience furnished the stepping stone by which Mr. Phillips rose to high position in the Sinclair organization. He joined the Sinclair interests in 1916 as a member of the legal department of Sinclair Oil & Gas Co. In 1918 he was appointed a member of the administrative staff and since that time has served the Sinclair interests in various executive capacities.

When interests of the old Prairie Oil & Gas Co. were combined with Sinclair properties to form Consolidated Oil Corp. in 1932, Mr. Phillips became president of Sinclair Prairie Oil Co., the chief operating subsidiary and other offshoots. He has served in that capacity in the past 8 years.

When Sinclair Crude Oil Purchasing Co. was formed in the early part of 1921, Mr. Phillips was made vice president. Less than 2 years later he was elected president, which office he retained until the summer of 1930, when Sinclair Consolidated Oil Corp. disposed of its interest in Sinclair Crude Oil Purchasing Co. to the Standard Oil Co. of Indiana. At that time he resigned from Sinclair Crude Oil Purchasing Co. to accept a place on the executive staff of the Sinclair organization. During the latter part of 1930, he reentered the service of Sinclair Oil & Gas Co. as president of the company. He was also made vice president of Sinclair Refining Co.

Resignation of Mr. Gallagher, rumored for 2 weeks in the oil industry, was confirmed last week in New York. He joined Consolidated as president, second officer of the organization outranked only by Harry F. Sinclair in 1932, terminating 20 years of service in the Pacific Coast industry spent largely with Shell companies. Mr. Gallagher became senior vice president of Shell Oil Co. of California in 1910 and was instrumental in building that company from a meager start as a marketer only, to an integrated unit with producing, refining, transportation and distribution properties throughout the Pacific Coast area.

Since becoming president of Consolidated, Mr. Gallagher has served on numerous boards and committees dealing with problems common to the entire petroleum industry. He was a member of the executive committee of the old National Petroleum Agency which functioned for a part of the time as representative of the industry under the National Recovery Act.

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Industry Capable of Meeting National Emergency

WASHINGTON, D. C.—Dr. Robert E. Wilson, oil adviser to the National Defense Advisory Commission, stated here on Monday that the petroleum industry is ready to supply all oil needs in the event of a national emergency. He recommended, however, that steps be taken to accumulate necessary stocks of 100-octane aviation gasoline, which are not now immediately available. So far as the industry as a whole is concerned, "its growth since the last war has been so tremendous that even satisfying the enormous demands of a mechanized army presents no serious problem," he said.

Only in the case of the relatively new product, 100-octane gasoline, containing synthetic high-octane blending stocks, does special attention now seem necessary. But even here it appears that the needs can be met adequately by prompt government action directed at building up stocks of this important product and increasing its own storage with particular emphasis on the desirability of underground storage facilities in localities that might be vulnerable aboveground. Ordinary aviation gasoline of 92 or lower octane presents no problem.

"Consideration is being given to the problem of meeting emergency demands which may come at uncertain locations for large supplies of petroleum products such as Navy grade fuel oil."

Dr. Wilson said that his petroleum section operates on the same basis as other sections of the commission which must obtain and analyze in detail the needs of the Army and Navy for particular munitions or raw materials. These requirements are then compared with the productive capacities of the various industries, following which recommendations are made as to the best means for eliminating bottlenecks through purchase of reserve stocks, building new plants either with or without government aid and suggesting alternatives or modifications of specifications so that government requirements can be met promptly and at the most economical cost. Dr. Wilson explained that the petroleum section is also studying the possibility of augmenting supplies of toluene and synthetic rubber by some of the newly developed processes which start with petroleum raw materials.

"Inasmuch as these studies are largely technical and confidential," he said, "it is not possible to discuss in detail the progress which is being made, but it seems significant that instead of having any bottlenecks of its own, petroleum is now being called upon to help eliminate bottlenecks in other industries."

Dr. Wilson said that he had received many offers of cooperation from various organizations in the petroleum industry for which he was very grateful, adding, however, that at present his group is mainly concerned with technical problems on which individual rather than group assistance is required.

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Gulf Names J. T. Goodman Vice President

C. R. Minor, vice president of Gulf Refining Co. since 1918, retired July 1, following 36 years of service with that company. Mr. Minor had headed the Shreveport division of the company for a number of years, and is succeeded by J. T. Goodman, who was transferred to Shreveport January 1 as his assistant.

Mr. Minor was born in Canon City, Colo., attending Colorado public schools and graduating from the University of Pennsylvania. Prior to his association with the Gulf companies, he was employed in the treasurer's office of the Southern Pacific Railroad in Houston, Tex.

In 1904 he joined the Gulf as a bookkeeper in the Houston office. His rapid rise in the organization brought him to Shreveport in 1918 as vice president of the Gulf Refining Co. of Louisiana. His 22 years in that city are marked by an active participation in civic affairs. He was a director of the Shreveport Chamber of Commerce and took an active interest in the Little Theater and Boy Scout work. He will continue his residence at his country home near Greenwood, La.

J. T. Goodman has 21 years of experience with the Gulf Refining Co. He was born in Orange, Tex., where he attended high school. Upon his graduation from Peacock Military Academy in San Antonio, he entered Texas A. & M. College, but left school upon the death of his father, lacking 1 year of studies for graduation. Following a year spent at home, he was appointed a captain in the Texas State Militia, and saw service on the Mexican border. He was later sent to the general staff school in Washington, where he studied until the United States entered the World War.

He was then sent to Fort Worth, Tex., as an instructor in the newly organized Thirty-sixth Division. Beginning as assistant instructor on the rifle range, he later took command of a machine-gun unit, and went overseas with the Thirty-sixth and served in the Champagne sector.

He was originally slated to attend school in France and was promoted to the rank of major, but a change in plans brought his reassignment to his 143rd Regiment. In October 1918, he was made a lieutenant colonel and assigned to the 141st Infantry of the Thirty-sixth division, which he brought back to this country at the close of the war.

C. R. MINOR *J. T. GOODMAN*

He joined the Gulf land and scouting department in Houston in August 1919, remaining in Houston until the fall of 1920, when Mexia became active and he was transferred there. The discovery and development of the Powell field took him to Corsicana and he was placed in charge of the Central East Texas zone with headquarters in Tyler in 1928. In that capacity he saw the discovery and development of the East Texas field, until January 1, 1940, when he came to Shreveport as Mr. Minor's assistant. His latest promotion names him general agent for the company, in charge of the Shreveport division.

Congress Likely To Remain In Session Most of Summer

By HENRY D. RALPH

WASHINGTON, D. C., July 8.—Business is now in one of the greatest periods of confusion since the early days of the New Deal, and there is scant prospect that the uncertainties will be dissolved for many months.

The oil industry, faced with loss of export markets, threat of federal regulation, and imminence of antitrust prosecution, shares with business generally the uncertainties as to the outcome of the wars in Europe and Asia, the course of our national-defense program, new administration moves, legislation pending in Congress, and the presidential campaign.

War news indicates that England is in for terrific punishment from the Nazis, and many of our military men feel that she may not be able to withstand the assault. If she does hold out and can continue the blockade of Germany and Italy during the coming winter, Germany's position will be less precarious than before because the Nazis now have a virtual economic hegemony over all of Europe, and unless they get into a scrap with Russia they probably will be able to get all of Rumania's oil and considerable supplies from the Soviet, so the war may drag on with increasing dislocations of American economy. If England is successfully invaded, the seat of the British Empire may move to this hemisphere, bringing the war to our shores and increasing the danger of our involvement. Only a quick and decisive victory by England would end the war's upsetting effect on American business, and this does not seem likely.

Congress

A session of Congress is traditionally "bad for business," and while some of the measures now pending are designed to help business there are many others in the opposite category, and as long as Congress remains in session there is a danger that hampering legislation may be passed, particularly at this time when anything with a national-defense label on it gets preferred status. The president wants Congress to adjourn, but most Republicans and many Democrats feel that their place is on the job in Washington and that Congress should remain in session more or less continually in the face of the present emergency. Having voted President Roosevelt vast powers of all sorts in dealing with defense matters, Congress feels that it should now be on hand to see that he does not misuse them or take steps in the foreign field which might involve the United States. On the other hand, many members realize that as long as Congress is in session the president can continue to submit requests for huge appropriations and additional legislation in the name of national defense and that Congress cannot well refuse such. The upshot probably will be that Congress will be in session the greater part of the summer and fall except for relatively short recesses, but probably will not turn out very much legislation.

As long as Congress is in session, however, there is a chance for enactment of almost anything on the calendar. The Cole oil-control bill, for example. So far, Chairman Cole of the subcommittee which held the hearings has made no move to report out the bill or draft an amended version, but the administration is still pressing him for action and the "national defense" lever may be used on this measure. Mr. Cole probably will make a statement on the floor of the House soon summarizing the hearings and perhaps indicating the attitude of his committee.

The House subcommittee which has been looking into coastwise tanker rates is preparing a report which should be ready soon and which may recommend a fuller investigation or continued watching of this situation. An attempt may be made this week to end the long deadlock on the antipollution bill. Chairman Mansfield of the House rivers and harbors committee is prepared to move that the House recede from its insistance on the Mundt amendment and accept the Senate version. The Mundt amendment would require a certificate of public convenience and necessity before any "new source of pollution" could be created which might let foreign matter reach a navigable stream. This would mean a federal permit for every new oil well, factory, or perhaps even a residence attached to a sewer. The Senate bill is not opposed by the oil and other industries involved in pollution control. The Johnson bill to require a permit from the Interstate Commerce Commission before construction of any new oil pipe line may come up for action if the session is prolonged. Senator Johnson of Colorado has proposed an amendment to his bill to exempt crude-oil lines, leaving it applicable only to gasoline lines. This apparently is designed to remove much of the opposition to the measure in order to enhance its chances of passage, but it also reveals that the moving spirit behind the measure is the desire of railroad interests to curb the movement of gasoline by pipe line, since the rails are not so much concerned with crude movements by pipe.

Executive Actions

To catalogue the vast array of emergency and defense powers vested in the president by old and new legislation would fill many pages, but it is well known that he has the authority to do many things which affect the every-day operations of almost every sort of business. When and how he may decide to exercise these powers is another factor in the uncertainty facing industry.

Several examples of the use of executive powers have developed in the past couple of weeks. Most recent is the president's proclamation subjecting a long list of commodities to export license control. A bill (H.R. 9850) to expedite the strengthening of national defense in various ways contained one section in general language authorizing the president to prohibit or curtail the export of materials necessary for the servicing, operation, or manufacture of military equipment. This section grew out of a bill to license the export of scrap iron, but its language was broadened by Congress with the statement that it might be useful in regulating the export of aviation gasoline.

This bill was signed by the president on July 2, and at the same time he issued a proclamation applying it to a long list of basic strategic materials, chemicals, metals, aircraft, instruments, and machine tools. The system went into effect 3 days later, July 5, and one of the intervening days was a holiday, so business had no warning and no time to prepare. Exporters were thrown into confusion and ships had to be unloaded because export licenses could not be obtained before sailing time. While there was no particular objection to the licensing system or to the list of commodities covered, exporters complained bitterly that they were given no time to adjust their business to the new regime. There had been no intimation that the control was to be placed on many of the materials listed. No petroleum products are on the list of controlled exports, but the list may be expanded at any time without notice, and if the president's advisers believe that defense or foreign policy requires a curtailment of exports of aviation gasoline or other petroleum products the license system may be applied overnight. Toluol is one of the chemicals now under export control, but this is defined to include only coal-tar toluol and not petroleum toluol.

Another surprise executive action, for which shipping men say there is no apparent reason, was the proclamation requiring a permit to move any vessel in U. S. waters.

Antitrust Activities

The rumor persists in business circles that the administration may move to suspend the application of the antitrust laws where they might interfere with cooperation between competitors to speed the defense program, but there is absolutely no confirmation of this in any official quarter. On the contrary, both the president and the attorney-general have stated publicly that strict enforcement is more necessary now than at any time in order to prevent profiteering and use of the emergency as an excuse to restrain competition and increase prices. There is reason to believe that the Department of Justice and the Defense Advisory Commission have had conversations on this subject, but there is nothing to indicate that any new policy has been evolved. If and when the Defense Commission requests an industry to follow a certain plan of freezing prices or allocating orders, it is highly probable that the antitrust division will keep hands off so long as the program is followed strictly and is not used for any purpose other than expediting defense orders, but otherwise the militant enforcement policy will be continued.

The oil industry is still an object of attack by the Department of Justice, and officials declare that the filing of a major suit under the Sherman act is only a matter of a few deys or weeks. The delay in actually filing this long-threatened suit is not due to any consideration of the importance of the oil industry to national defense, the officials declare, but simply to the many technical legal matters involved in drawing up the formal bill of complaint.

Gulf Coast Export Movement Shows No Improvement

HOUSTON, Tex., July 8.—Export movement of oil from Gulf Coast ports continued at low ebb the past week following the recent cessation of shipping to Italy and France. Fewer than a half dozen foreign tanker sailings were reported during the week from all ports together. Those cargoes lifted were to Havana and South American destination with one Norwegian vessel reported clearing for Britain.

At the same time there was no indication that there would be any early increase in export demand. Beliefs on the part of some Gulf Coast suppliers that Britain shortly would be forced to make overtures in the Western Hemisphere for additional supplies of oil as a result of the indicated closing of its Iran and Iraq sources of supply as yet have not been substantiated by any new inquiries for material on the Gulf Coast.

Gulf Coast suppliers, however, still are watching closely for any war development in England that might lead to a move on the part of that country to obtain new oil supplies from this country. General opinion of Gulf Coast suppliers is that if there is to be any increase in export oil demand it is going to have to come from Great Britain. It is believed that first call will be made upon British potential sources of supply in South America, but this indirectly is expected to benefit the position of this country's Gulf Coast suppliers by removing the surplus of South American oil that has been coming into this country.

Although it is realized that British domestic consumption of petroleum has been reduced to offset any increased military requirements so far it is believed by most Gulf Coast exporters that Britain as yet has not had any large military need for oil, but that with the launching of the impending gigantic Nazi assault on England proper a different story will be told, and that if England is not crushed quickly its demand for oil from this country will be greatly swelled.

In the meantime the sharp curtailment within the last several weeks of the already reduced export movement of oil is being felt with increasing acuteness. Although there has been a substantial pickup in coastwise movement and domestic demand this has not been sufficient so far to absorb the supplies of material realized by the closing of export outlets. Consequently, there has been steady accumulation of supplies to the already congested storage.

The further curtailment of approximately 80,000 bbl. in the Texas' daily production order the past week comes as a reflection of the stock accumulation on the Gulf Coast and failure of the domestic market to absorb the loss of export trade. In the additional production cut, however, Gulf Coast oil men see a chance that the supply may be more nearly balanced with the reduced demand occasioned by the elimination of foreign outlets.

Generally speaking, Gulf Coast refinery markets still are displaying a decided resistance to further weakening as a result of the almost total cutting off of export outlets during the past several weeks. Although most all products, except for the heavier and residual fuels which now are bolstered by a strong domestic demand, are weak, there has been no important additional breaking of markets as a result of the recent closing of Italian and French outlets. The present weakness is largely the reflection of the accumulation of large stocks over a period of time rather than a direct reflection of the sharp curtailment in exports.

Directly affected by the depressed export situation on the Gulf Coast are bunkering terminals. With foreign shipping generally greatly curtailed, these terminals now are forced to depend for fueling business on vessels engaged in coastwise trade. Terminals report that foreign-flag ships, not only tankers but freighters, are conspicuous by their absence, but that the increase in domestic trade has been sufficient to offset that and maintain the bunkering market firmly in line with the strengthening of the cargo market for heavy fuels.

Although total figures on the volume of export movement of oil from Gulf Coast ports during June are not available so far, reports of individual shippers already compiled indicate that shipments were the lowest for any month within the past 5 or 6 years, and probably will not total much more than 1,500,000 bbl., most of which was moved during the first 2 weeks of the months while Italy and France were still taking out material.

DEATHS

JAMES E. SELF, 61, Erie, Pa., died July 2 following an extended illness. Mr. Self was employed with the Galena Oil Co. for 30 years. Surviving are his widow and one son, James W. Self, of Franklin, Pa.

W. M. EVANS, Neodesha, Kans., died July 1 from burns received on duty at the Neodesha refinery. He was a stillman. The accident occurred when the safety valve on a road-oil still at the refinery blew out, spraying oil on the deceased and two fellow workmen.

WILLIAM C. HARSCH, 29, sales engineer for National Supply Co. stationed at Olney, Ill., was fatally injured in an automobile accident near Salem, July 2. Mr. Harsch was a graduate of the petroleum-engineering school of the University of Oklahoma and for a time was stationed at Tulsa.

A. R. THOMAS, 74, veteran drilling contractor, died at his home in Tulsa July 8. Mr. Thomas was one of the organizers of the Commercial Drilling Co., Tulsa, coorganizers being S. R. Mealy and W. W. Wolf. Mr. Thomas was a native of Shippensville, Pa. He entered the oil business as an employe of the South Penn Oil Co. In 1907 he moved to Oklahoma, where he settled at Chelsea, there becoming oil-field superintendent for Stubbs & Lowe. Later he organized the Rogers County Drilling Co. Surviving are the widow; a son, Chester R. Thomas, of Santo Domingo, and a daughter, Mrs. Grant Laxman, of Bartlesville, Okla.

EDWIN B. HOPKINS, 57, president of Edwin B. Hopkins, Inc., and an executive in several other independent oil companies, Dallas, Tex., died at his home in Dallas July 5 following a heart attack. Mr. Hopkins was a director of the Independent Petroleum Association of America and was chairman of the general committee making arrangements for the annual meeting to be held in that city this fall. He was also a noted geologist, serving for several years as vice president of the American Association of Petroleum Geologists.

THE MARKETS*

CRUDE OIL: The large reduction in Texas production over the past 2 weeks has eliminated some of the weak spots in that state. The Illinois situation has improved with a decline from the recent high production level in prospect.

REFINERY: Heavy gasoline stocks continue a depressing influence and, consequently, the industry has been unable so far to enjoy benefits from a record domestic demand. The stock position of inland refineries is fairly sound. The summer's first gasoline buying by major companies was reported on a limited scale in the Mid-Continent district. Lubricating oils in Pennsylvania and the Mid-Continent lost 0.5 to 1 cent per gallon the first week in July. Export activity in all products remains below normal. There are no immediate prospects for improvement in the offshore movement. Kerosene and light fuels are softer on the East Coast and Middle West.

TANK-WAGON AND POSTED DEALER: Standard Oil Co. of New Jersey lowered kerosene 0.3 of a cent in New Jersey and reduced regular motor-fuel prices to the dealer tank-wagon trade at several points in North Carolina 0.45 to 1.75 cents per gallon.

FINANCIAL: Oil shares closed slightly higher, moving over a narrow range in a dull market. Average of 30 representative stocks for week ended July 5: High, 21.12; low, 20.60; close, 20.92. Week ended June 29: High, 21.54; low, 20.28; close, 20.84.

*Detailed information in market section.

Collier Heads Standard of California

SAN FRANCISCO, Calif.—H. D. Collier has been named by the directors of Standard Oil Co. of California as president, succeeding W. B. Berg, who died last week.

Mr. Collier spent practically his entire business life with Standard of California. He joined the company as mechanical salesman in Seattle, Wash., in 1903, at the age of 27. He progressed steadily during the ensuing 37 years until at the time of his election to the presidency he was senior vice president.

After 2 years at Seattle, he was made fuel-oil salesman and engaged in introducing the use of fuel oil in the Pacific Northwest. During this period his territory included Portland, Ore., and Tacoma and Seattle, Wash.

In 1910 he was appointed assistant San Francisco district sales manager, from which post he advanced in 1912 to district sales manager. In 1916 he became assistant manager of sales at the home office in San Francisco. Three years later he was made manager of refined-oil and naphtha division. In 1922 he was appointed general manager of domestic, refined and lubricating sales, during which office he served as member of transportation, sales and administrative committees. His advancement to the directorate came in 1924 and to the vice presidency in 1934.

Mr. Collier is one of the country's leading oil executives. He is a director of the American Petroleum Institute and of the San Francisco Chamber of Commerce.

At the present time Mr. Collier is in Japan on a business trip from which he is expected to return at the end of the month.

H. D. COLLIER

International

War . .

Effect on Standard (N. J.) European Subsidiaries

SUBSIDIARIES of American oil companies operating in the portions of Europe involved in the war are functioning under direction of the various governments and, temporarily at least, are regimented as thoroughly as all other industries.

This was brought out recently in a discussion of the war's influence on the operations of European subsidiaries of the Standard Oil Co. (New Jersey). The net investment of Standard affiliated companies in Europe and North Africa amounts to around $165,000,000, or about 13 per cent of the total net assets. The physical properties of subsidiaries in the war zone consist of crude production and a refinery in Rumania, refineries in France, Denmark, Norway, Belgium, England, and Italy, a small amount of production in the last-named country and producing properties in Hungary, asphalt and lubricating plants in Germany, 36 deep-sea tankers under various European flags, and marketing facilities in all the larger countries of Europe outside of Spain and Soviet Russia.

Of the company's world fleet of 207 tankers, five have been sunk. Both vessels and cargoes were covered by war-risk insurance. No information has been received on five tankers under the German flag and one under the Norwegian. Several others are tied up on the American side of the Atlantic and the remainder are in operation under the direction of their respective governments.

In commenting recently on the European war outlook, W. S. Farish, president of Standard of New Jersey, said:

"We feel that the oil industry is a vital part of the world today and that somewhere we will always be needed. We are rendering a necessary service and I have every confidence that when the final bell is rung on this war period, we will still be doing business."

Hungary . .

Another Producing Field Reported Last Week

DISCOVERY of another producing field in Hungary was reported last week in press dispatches from Budapest. The new productive area is in the region of Szentes between the Tisza and Maros rivers. Government authorities said the new discovery was capable of "large" production.

The Budafa-Puszta field in the southwestern part of Hungary operated by Hungarian-American Oil Co., an operating affiliate of Standard Oil Co. (New Jersey), has been the nation's chief source of crude oil since commercial production was established during the latter part of 1938. In 1939 the Budafa-Puszta field, near Lispe, produced at a rate ranging from 2,000 to 4,000 bbl. per day. Since start of the European war the operating company has intensified its exploration program upon insistence of the government. Data on current production are not available, but it is understood that Hungary has practically attained self-sufficiency in the matter of petroleum production.

Following discovery of the Budafa-Puszta field, Hungarian-American directed its exploratory efforts to other parts of Hungary. About a year ago reports were circulated that another field had been discovered, but this information could not be confirmed.

British Dominions . .

Australia and New Zealand Protect Petroleum Supplies

BOTH Australia and New Zealand have taken further steps to protect their petroleum supplies. Effective July 1 New Zealand added additional restrictions by reducing all licenses by one-third thus limiting motorists to from 4 to 8 gal. per month.

Earlier, Sir Frederick Stewart, Australia's minister of supply, announced that all gasoline supplies would be pooled by agreement with the oil companies and sales will be made by the pool instead of by the individual companies. The pool will supply members in proportion to quotas to be established after creation of the pool.

Mexico . .

Production Figures for First Third of Year

PRODUCTION of Mexican crude oil for the first 4 months of this year averaged 110,942 bbl. daily. Peak output for the period was attained in March when the daily average climbed to 125,711 bbl., totaling 3,897,058 bbl. for the month.

Crude production declined in April to 3,326,536 bbl., a daily average of 110,884 bbl., slightly under the average for the entire period.

Petroleos Mexicanos accounts for more than 80 per cent of the total Mexican crude production under the present organization of the industry in that country. The Administracion General del Petroleo Nacional produces about 14 per cent and the remainder is accounted for by independent concerns under national administration or by independents so far untouched by nationalization of the industry.

The Poza Rica field produces more than 60 per cent of all Mexican crude. In March, Poza Rica produced 68 per cent of the total, 65 per cent in February, 63 per cent in January, and a low of 62 per cent in April.

The production by districts and months for the first third of this year was:

District—	January	February	March	April	Total
North Tampico	439,262	488,268	595,003	585,008	2,107,541
South Tampico	223,584	179,724	168,446	131,124	702,878
Poza Rica	1,933,445	2,010,825	2,665,966	2,087,726	8,697,962
Isthmus region	495,061	430,223	467,643	502,678	1,895,605
Monthly total	3,091,352	3,109,040	3,897,058	3,326,536	13,423,986

Rumania . .

Government Regulation Appears to Be Imminent

Expulsion of most foreign employes by government order in the Rumanian oil fields came about after discovery of indications that sabotage plans were afoot to emasculate the wells and transportation outlets. As in the first World War when Rumanian fields were rendered unproductive by various means rather than permit them to fall into the hands of the enemy a similar program was thought to have been worked out there in the present conflict. The first incident leading up to government regulation of Rumanian fields was detection of barges loaded by British with dynamite and cement destined for the bottle neck on the Danube—the Iron Gates on the Yugoslav-Rumanian border. Exposition of what appeared to be a plan to block the Danube, Germany's best source of Rumanian petroleum, resulted in strict supervision of oil-field employes.

Papua . .

Deep Test Planned for Latter Part of Year

AUSTRALASIAN Petroleum Co., Ltd., a corporation in which Socony-Vacuum Oil Co., Inc., Anglo-Iranian Oil Co., Ltd., and Oil Search, Ltd., a Shell subsidiary, are interested, is proceeding with plans to start a deep rotary drilling test in Papua the latter part of this year. The drilling program was preceded by several months of aerial photography, geological work and geophysical examination of the area to be tested. The test is to be located approximately 75 miles from the coast, near the banks of the Vialala River.

Venezuela . .

Oil Production Increased During Past Few Weeks

CRUDE-OIL production from Venezuela has been increased during recent weeks to approximately 625,000 bbl. daily, compared to an average ranging around 575,000 to 580,000 bbl. during the first 5 months this year. The Oficina field in eastern Venezuela, State of Anzoategui, largely owned by Mene Grande Oil Co., subsidiary of Gulf Oil Corp., is currently producing approximately 43,500 bbl. daily, nearly double the rate of output when the 16-in. pipe line to Puerto la Cruz on the northern seacoast was completed late in 1939. Mene Grande is operating 14 rotary strings in the Oficina field, a few of which are engaged in deepening previously completed wells.

California Reserves Maintained By Intensive Exploration

By ROY M. BARNES
Chief Geologist, Continental Oil Co., in California*

THE purpose of this paper is to sketch geological endeavors in California during the past 20 years and to compare these activities with results. Trend of geological employment and, more recently, geophysical activity, should supply an index of endeavors. Indicative of results are new fields discovered and areal and vertical extensions of old fields, average depth of discoveries, number of abandoned wildcat wells together with average and maximum depths, current wildcat activity, producing wells completed, production statistics and reserve estimates. Fresh geological thought and new geological and geophysical methods have contributed to the rapid changes of the past two decades. A review of the past should be helpful in forecasting the future and some useful lessons may be learned from such a review.

Early History

The first oil well in California was completed in 1875 in Pico Canyon, 32 miles northwest of Los Angeles. By 1903 approximately 37 oil fields or groups of small fields, 10 of which are considered important, were discovered by drilling. These discoveries were largely the results of stepping out from oil seeps. The discovery rate was 1.3 oil fields per year.

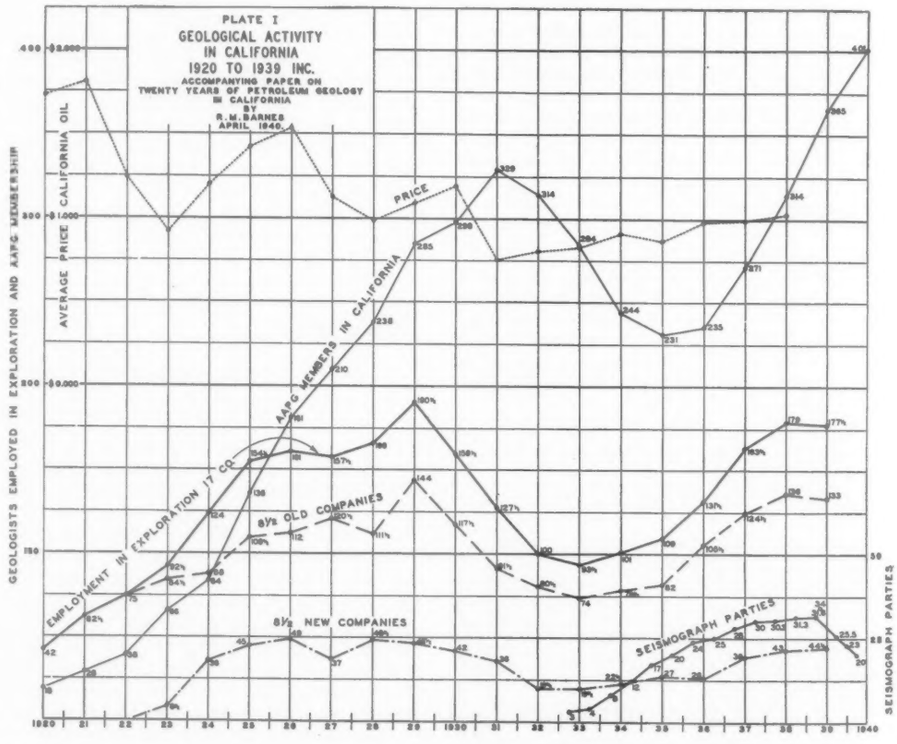
Between 1905 and 1910 geologists became important factors in the search for new oil fields. From 1908 to 1919, inclusive, 16 oil fields were discovered, 10 of major importance. This was a discovery rate of 1.3 fields per year for 12 years, which was the same as for the previous period, but the fields were larger and 2,400,000,000 bbl. of ultimate production was added as compared with 1,100,000,000 bl. for the 28 years prior to 1904. Deeper drilling made possible by heavier cable-tool equipment, combination tools, and in 1910 the rotary shared equal honors with geology for these achievements.

The year 1920 began with past production of 1,245,728,154 bbl. of oil, being 25 per cent of the total for the United States, and approximately 2,218,000,000 bbl. of estimated reserves, making an estimated ultimate of 3,464,000,000 bbl. from 53 oil fields of assorted sizes, 20 of which might be ranked as of worthwhile importance. The geologist had passed beyond the stage of being a necessary evil and a period of rapid advancement in all scientific and mechanical methods of exploring for oil was beginning.

Geological Activity

All oil and gas discoveries of any importance in California during the past 20 years have been made by companies maintaining competent geological and/or geophysical staffs.

At tthe request of the writer, 17 oil companies contributed data showing the average number of geologists employed by them, by years for the period 1920 to 1939, inclusive, in exploration geology or work relating thereto in California. A summation of this information appears in graphic form on Plate I. Exploration employment follows closely the boom and depression periods of the past 20 years. During the twenties new oil-company entrants into California built up sizeable geological staffs, and some old companies that had not previously engaged geologists in exploration employed them for this purpose; these are called "new companies." It is interesting to note the more stable appearance of the "new companies" graph as compared with that of the "old companies." Also on Plate I the effect of price fluctuations on geological activity is quite evident, but in the late thirties activity increased more rapidly than prices. After 1926 the difference between the A.A.P.G. membership graph and the exploration-employment graph can be accounted for by many additional geologists engaged in development or exploitation geology, consultants, and geologists working outside of California but maintaining official residences in the state.



During the twenties, exploration geology, which reached a peak in 1929, consisted of the conventional type, supplemented by physiographic and trend studies which played an important role in the Los Angeles Basin discoveries and to a lesser extent in the San Joaquin Valley. In the Los Angeles Basin much rewarded effort was given towards reconstructing topography and studying of soil maps. Some unrewarded work was done throughout the state on data which could be collected from and in many shallow wells drilled for water. Work with Foraminifera which was started in 1923 began to yield reliable results by the end of this period.

Of course it can be seen and understood that geological activity was on the decline and at a low ebb during the depression years of the early thirties. By that time most of the obvious and readily mapable structures had been tested. During this lull, considerable regional geological reconnaissance was done in California outside of the provinces in which commercial oil and gas had already been found.

From the time of the employment low in 1933 to a 1938-39 peak which approached that of 1929, geological activities took on new aspects. More detailed surface and subsurface studies became possible because of improved tools. The geologist was exposed to results of the reflection seismograph which in turn broadened his outlook and field of activity. Research which showed that many of the earlier and current discoveries were related to stratigraphic and lithologic changes intensified the amount of detailed surface and subsurface work that was done on stratigraphy. More recently the problem of finding oil under California's many important thrust faults is attracting increasing attention.

The use of Foraminifera for surface and subsurface correlations became common in the thirties, but Foraminifera are now being supplanted by electrical logs within proved areas. During this period the increasing value of electrical logs for correlation purposes and of both electrical logs and core analyses as an aid to discovery have

*Briefed from a paper read before the American Association of Petroleum Geologists at the annual meeting in Chicago April 12, 1940. The complete paper will be published in an early number of the association's bulletin.

played important parts in the upward trend of geological endeavors.

To the geologist engaged in evaluation, core analyses, and bottom-hole data are making possible a volumetric method of calculating reserves. This method is in the process of replacing decline curves which have been of limited value since proration was started in 1929.

As an example of the influence of improved drilling equipment and technique on oil exploration and development, a well 11,000 ft. deep can now be completed at no greater cost than was spent for a 5,500-ft. well in 1926. Drilling speeds have been doubled and tripled.

Geophysical Activity

Considerable refraction seismograph work was done in California during the middle and late twenties without providing any data that can be directly related to subsequent discoveries. The same can be said for torsion balance and magnetometer surveys which were made during this period and have continued at intervals to the present. Any good that the magnetometer may do as an exploration tool will probably be the result of extremely detailed work in local areas. In 1937 some gravity meter parties entered California and one party is yet active. This instrument furnishes a rapid means, as compared with the torsion balance, of measuring gravity changes over a large area; these changes in California may or may not be related to structures which might contain oil. Some electrical resistivity work has been done in California with interesting results at shallow depths. The finding of one small oil field was aided by such a survey.

The first reflection seismograph crews entered California in 1931. Early work was done by correlation shooting but soon a method of dip shooting was developed which rapidly supplanted the former method. More recently a refined combination of correlation and dip shooting is proving effective.

Plate I contains a graphic representation of the amount of reflection seismograph work which has been done from 1933 to early 1940. From 3 crews in 1933 the number of parties increased to 34 in April 1939 and then started on a rapid decline to 20 crews in March 1940. The first geophysical gas-field discoveries in 1934 and the first geophysical oil-field discoveries in 1936 were responsible for the upward trend of seismograph activity. The recent decline may be explained by many factors. Most of the shootable areas of the state in which there is current interest in oil and gas possibilities have been covered in reconnaissance fashion. Much extreme detail has been done in the vicinity of recent seismograph discoveries. The work which is now being done is for more detail in vicinity of proved fields and a tightening of reconnaissance in areas already covered. Some apparently favorable seismograph structures have been drilled and proved nonproductive because of lack of proper reservoir conditions; in others tested and found dry, velocity changes wiped out the indicated structure and, in other failures, the stratigraphic conditions or faults considered essential to the play did not prove valid in providing the desired trap. Apparently the reflection seismograph is "taking a breather" in California. It is probable that the downward trend will soon flatten because most companies will continue some of this type of exploration. However, discovery of lower productive horizons and/or new regions of oil and gas possibilities in the valley floors would no doubt cause another rapid increase in seismograph exploration.

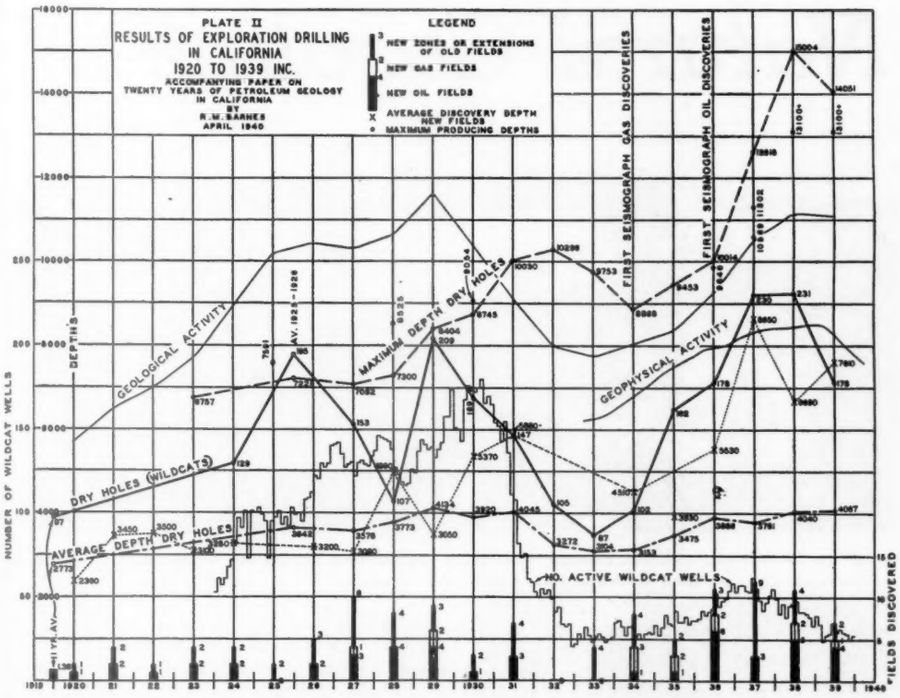


PLATE II
RESULTS OF EXPLORATION DRILLING IN CALIFORNIA 1920 TO 1939 INC.
ACCOMPANYING PAPER ON TWENTY YEARS OF PETROLEUM GEOLOGY IN CALIFORNIA BY R.W. BARNES APRIL 1940
LEGEND
NEW ZONES OR EXTENSIONS OF OLD FIELDS
NEW GAS FIELDS
NEW OIL FIELDS
AVERAGE DISCOVERY DEPTH NEW FIELDS
MAXIMUM PRODUCING DEPTHS
DEPTHS
NUMBER OF WILDCAT WELLS
FIELDS DISCOVERED
GEOLOGICAL ACTIVITY
GEOPHYSICAL ACTIVITY
FIRST SEISMOGRAPH GAS DISCOVERIES
FIRST SEISMOGRAPH OIL DISCOVERIES
MAXIMUM DEPTH DRY HOLES
DRY HOLES (WILDCATS)
AVERAGE DEPTH DRY HOLES
NO. ACTIVE WILDCAT WELLS
1919 1920 21 22 23 24 25 26 27 28 29 1930 31 32 33 34 35 36 37 38 39 1940

Year—	Oil discovery: Geology	Oil discovery: Combination	Oil discovery: Seismograph	Gas discovery: Geology	Gas discovery: Combination	Gas discovery: Seismograph
1934	1	0	0	0	1	2
1935	1	0	0	0	0	2
1936	3	1	2	0	0	2
1937	1	1	1	0	0	0
1938	3	1	1	1	1	0
1939	1	1	2	1	0	0
Total	10	4	6–20	2	2	6–10

Velocities have been determined by shooting approximately 60 wells in California. A well-velocity group was organized which has been responsible for obtaining data from 42 wells as of March 15, 1940. Such information is proving of great value for correlating and evaluating results of seismograph work.

Not yet justifying consideration separately from geophysical activity are some soil-analysis investigations started in 1938 and a little recent geochemical well logging. Soil-analysis results in the vicinity of some oil fields have shown the expected relationship; in the vicinity of other fields this has not been true. Although considerable work in soil analysis of both reconnaissance and detailed nature has been done, it cannot yet be said to have aided in discovery of a new field. Geochemical well logging in California is too much in its infancy to justify comment at this time.

Results

Various types of data relating to oil exploration and development in California are shown graphically on Plate II and Plate III for the purpose of indicating results of geological endeavors during the period from 1920 to 1939, inclusive. The graphs of exploration employment and number of seismograph parties of Plate I are also shown on Plate II and Plate III as an aid to comparison with results.

A great variety of information can be used to indicate results of exploration activity. The data selected for this analysis are outlined and discussed in the following paragraphs.

In the selection of new fields to be plotted for the purpose of showing results of exploration, inconsequential discoveries have not been included. Both oil and gas discoveries are shown by years in columnar fashion on Plate II. Almost every year, deeper zones are found underlying already proved fields, and areal extensions of fields are made because of fault or stratigraphic control of accumulation of oil in off-structure positions. This situation has the same effect on reserves as the discovery of new fields and their number is also shown yearly by a column of lesser width on Plate II. The average depth of wells making discovery of new fields has also been plotted on Plate II for comparison with other data.

The state oil and gas supervisor prepares a statement of the number of wildcat wells abandoned each year, together with average depth. Such wells include only those drilled to discover new fields or extensions of producing fields. These data are plotted on Plate II together with maximum depths of wildcat wells and a few points showing maximum depth of producing wells with relation to wildcat depths. Current wildcat activity as prepared by Martin Van Couvering from A.P.I. figures is also shown on this plate.

As indexed by the exploration-employment graph and the seismograph parties graph, a startling comparison will be noted between geological activity and the configuration of all graphs shown on Plate II. With increasing geological activity, discoveries increase, more dry holes are drilled, depths become greater, and current wildcat wells trend upward.

From 1934 on, division of credit for new fields might be made as follows:

From 1920 to 1931, inclusive, 25 oil fields and 3 gas fields were found at the rate of 2.1 oil fields and 2.3 oil fields and gas fields per year. During the 6-year period from 1934 to 1939, inclusive, with geophysics entering into the picture, 20 oil fields and 10 gas fields were discovered at the rate of 3.4 oil fields per year and 5 oil fields and gas fields per year.

Some other interesting calculations can be made from the data on Plate I and Plate II. During the

(Continued on Page 101)

Refinery Expansion

Douglas Oil & Refining Co. to Build Refinery in Los Angeles Area

Construction is scheduled to start at once on a modern oil refinery and cracking plant with a rated capacity of 8,000 bbl. of crude oil per day, by the Douglas Oil & Refining Co., the plant to be constructed on an 18-acre tract at Main and East Road in Los Angeles County, California. Incorporation papers have been filed in Sacramento with a capital structure of 130,000 shares of accumulative, redeemable, convertible, serial 5 per cent preferred stock of $5 par value each and 740,000 shares of common stock of no par value. The incorporators are Donald W. Douglas, president of Douglas Aircraft Co.; George W. Stratton, Douglas-Stratton Oil Co.; Henry G. Reed, president of Petroleum Capital Corp., and vice president of Hill-Reed & Co.; William P. Andrews, Comet Oil Co.; A. L. Bergere, Mid-Continent, New Mexico and California oil fields operator, and L. E. Manseau, president of Cuba-California Naphtha Co.

The refinery will employ modern methods operated under the Dubbs process of the Universal Oil Products Co., or other similar process. Aviation gasoline, motor fuel, naphthas, kerosene, diesel fuels and fuel oils will be produced.

Officers of the new organization are: Mr. Douglas, chairman of the board; Mr. Stratton, president; Mr. Andrews, vice president and director of operations; Mr. Bergere, secretary and treasurer; David C. Moore, comptroller, and Fred Davies, sales manager.

An initial investment of $650,000 is represented in the enterprise.

Ground Broken for First Wisconsin Refinery

SHEBOYGAN, Wis.—Ground has been broken for the first refinery to be built in Wisconsin, that of Wisconsin Oil Refining Co. at a site south of this city. Plans call for immediate erection of a 5,000-bbl. skimming unit and later the construction of a cracking unit. Refined products will consist mainly of gasoline, kerosene, distillates, and fuel oil.

Officers of the company are Dewey E. Foster, president; W. H. Pauly, of Manitowoc, Wis., chairman of the board; John Heronymus, treasurer; Thomas Spence, secretary; W. H. Wingrove, vice president; and John A. Crawford, superintendent.

Michigan Refinery to Be Placed in Operation

SAGINAW, Mich.—Construction of Essex Refining Co.'s new 1,800-bbl. refinery at Essexville, Mich., has been completed and the plant is expected to be placed in operation this week. The plant is of the skimming type and will draw its crude supply from the Wisner field in Tuscola County. Delivery at present will be by truck, although a pipe line may later be laid. This is Michigan's first new plant of the year, the company being headed by George Brehm of Mount Pleasant. Walter H. Bayes is superintendent.

Since 1937 five commercial wells have been completed in the Wisner field, ranging in potentials up to 500 bbl. daily. Due to the crude's relatively high sulfur content the field's operators were unable to develop a market.

Oil Company Applies for Bulk Plant Permit in Wisconsin

RACINE, Wis.—W. H. Pugh Oil Co. has made a second application for a permit to erect a 2,000,000-gal. bulk oil plant here on the Root River at North Wisconsin Street. Several months ago the common council approved the original application of the same firm for a permit to build, but court action was started by nearby residents. It was charged the council's action was illegal since the original application was not accompanied by sketches and plans required by state status and city ordinance, and failure to study plans.

Operation Resumed at Bradford Oil Refining Co. Plant

BRADFORD, Pa. — Crude-distillation and cracking-reforming operations were resumed here July 1 at Bradford Oil Refining Co.'s plant it was announced by Dr. E. R. Lederer, president. During June the crude still and cracking-reforming unit was shut down for extensive inspection and repair while the lubricating plant, de-oiling plant, compounding and barrelling plant, canning department, and shipping department continued to operate and fill all the orders from inventory.

Since inventory was depleted to the point where additional stocks were needed to fill commitments on all grades of oils, it was decided to resume crude and cracking-reforming operations on July 1. In order not to contribute to the already depressed condition in Pennsylvania, Dr. Lederer announced, crude operations will be limited for the time being to 35,000 bbl. per month. The plant was to have returned to full operations by July 7.

Report Shows 547 Refineries Operating In United States at Start of Year

According to an information circular issued last week by the Bureau of Mines, the number of completed refineries in the United States on January 1, 1940, was 547, an increase of nine over the number on January 1, 1939. This is the first time in 4 years that an increase has been recorded. Of the 547 plants, 461 were operating at least in part and 86 were shut down completely. The number of operating refineries was the largest ever recorded.

The report shows that the highest daily throughput of crude was run in October 1939 and was about 3,700,000 bbl.

New construction declined, falling from 142,250 bbl. to 92,567 bbl., and the capacity added during the year rose only 378,350 bbl. in 1938 to 380,866 bbl. in 1939. Much of it was polymerization, alkylation and solvent extraction units of crude-oil processing.

Natural Gasoline

Two of the 15 horizontal 1,000-bbl. pressure tanks being shipped from Birmingham to locations in Mississippi and Louisiana. They are used for storing butane under 80-lb. pressure

Pressure Tanks Suggest Phase Of War-Preparation Program

Peoples' minds generally associate any unusual piece of equipment moving on the railroads these days with some phase of the nation's preparedness program. As 15 of the tanks shown here move through the southeastern states, the bullet-like heads often prompt a lasting impression in the minds of those who see them.

Actually, however, the tanks will rest in peaceful work, and will serve as parts of butane systems in the states of Mississippi and Louisiana.

These tanks are of welded construction. They are 12 ft. in diameter and 54 ft. long. They will be mounted horizontally on saddles and will operate under 80 lb. pressure. They were manufactured in Birmingham, Ala.

Louisiana Reports on Natural-Gasoline Industry in State

Twenty-five natural-gasoline plants, scattered throughout the oil and gas fields of the State of Louisiana extract 290,155 gal. of natural gasoline from 407,203,267 cu. ft. of gas processed each day, which figures are estimated from reports of the various companies covering inlet gas treated and gasoline produced for the month of November 1939. Because of the increasing production of natural gasoline in Louisiana, the industry has become one of fair size with even greater prospects.

Natural-Gasoline Production Shows Increase in May

The production of natural gasoline increased in May 1940, according to the Bureau of Mines. The daily average in May was 6,215,000 gal. compared with 6,180,000 gal. in April 1940 and 5,799,000 in May 1939. The chief increases occurred in the Rocky Mountain, Louisiana, Panhandle, and Osage districts.

Stocks again increased and the total on hand at the end of the month was 273,588,000 gal., 16,884,000 gal. more than on the first of the month and 12,684,000 gal. more than the total on hand May 31, 1939.

Shipments to jobbers and retailers decreased from 15,078,000 gal. in March to 14,448,000 in May while exports reported to the Bureau of Mines increased from 3,738,000 to 8,064,000 gal.

The average vapor pressure for shipments to refineries increased, but that of all other shipments decreased. The weighted average for the month was 19.0 lb., compared with 19.3 in April and 19.1 in May 1939.

Natural-Gas News

Gas-Appliance Sales Register Strong 5-Month Increase

NEW YORK.—Gas-appliance sales throughout the United States increased substantially during the first 5 months of this year as compared to sales figures for the same period of 1939, it was reported by C. W. Berghorn, managing director of the Association of Gas Appliance and Equipment Manufacturers. The strongest rise was in the sale of gas-fired furnaces, which registered an increase of 33.8 per cent during the period as compared to sales for the same months of 1939. During this 5-month period gas-range sales rose 14.1 per cent and gas water-heater sales were up 13.6 per cent.

Arkansas Supreme Court Upholds Permit To Distribute Natural Gas

Issuance of a permit granted the Louisiana-Nevada Transit Co. to distribute natural gas in Southwest Arkansas was upheld by the Arkansas Supreme Court last week. The decision was handed down following attack on the permit which gave the new company the right to move gas from Cotton Valley, La., to Hope and Okay, Ark., for industrial and municipal distribution. The company is in competition with Arkansas Louisiana Gas Co., and plans to expand its distribution facilities to other South Arkansas communities.

Canadian Legislation Strongly to Affect Oil and Natural-Gas Industries

OTTAWA, Ont.—The new federal budget and other government measures to meet war emergencies will affect the petroleum and natural-gas industries in Canada.

While provision is made for increased levies under the Excess Profits Tax Act, the government is adopting for the gold-mining and oil-producing industries a different basis of adjusting base of standard profits, taking into account the risks involved in exploratory and development work before production commences. The basis of computation will not be capital employed but number of units of output; and "in the case of new development, standard profits will be calculated by multiplying the number of units of output in the taxable year by the average price of the product during the base period." All such companies will, however, pay in excess profits tax and corporate income tax combined, a minimum of 30 per cent of the total profits.

It is estimated that the new 10 per cent tax on non-Empire products will involve a slight increase, possibly 2½ to 3½ per cent, in the ultimate price of imported petroleum products.

The federal Department of Munitions has named George R. Cottrelle, of Toronto, as federal oil controller. Mr. Cottrelle, a director of the Canadian Bank of Commerce, was for some years on the board of the Union Gas Co. of Canada, Ltd. His task will be to see that supplies of airplane, naval, and motor fuel are always available where needed, in Canada and Newfoundland; and he will have power, after investigation, to regulate the industry wherever necessary to this end. The appointment does not mean that any shortage of oil is anticipated. F. C. Mechin, technical consultant, in cooperation with the Canadian refining companies, has built up a year's supply in storage, surplus stocks being carried at no expense to the government.

The appointment is believed to foreshadow measures for the more extensive utilization of Turner Valley crude. It is anticipated that the 10 per cent tax will enable the Alberta product to displace imported crudes and gasolines from eastern Canada on the Winnipeg market, and facilitate the marketing of the Alberta products as far east as the Rainy River district in northern Ontario and as far west as the Okanagan district in British Columbia.

Further measures anticipated are the later extension of Alberta crude into eastern Canada markets, the production of aviation gasoline from the Turner Valley product in connection with the Commonwealth air-training scheme, and the rapid exploitation of additional potential oil areas in Alberta and Saskatchewan in order to build up further crude reserves.

It is anticipated that marketing in eastern Canada will be facilitated by lower railroad freight rates rather than by the construction of a pipe line, especially since the latter project would involve considerable delay.

Pennsylvania Commission Not To Appeal Court Decision

HARRISBURG, Pa.—The Public Utility Commission decided last week not to appeal a ruling of the Superior Court allowing the Peoples Natural Gas Co. to establish rate increases of approximately $1,300,000 a year in western Pennsylvania. The commission after an executive session announced, however, that it will continue to hold hearings in an investigation of the company's old and new rate schedules. No dates were set for the continued hearings.

The commission denied the company's petition for an increase in rates in February. The company appealed the commission's action to the Superior Court, and won its point, leaving the commission with the alternative of going to the state Supreme Court, or accepting the Superior Court decision pending a conclusion of its existing rate investigation.

Texas Natural-Gas Production in May Continued at April Level

Production of natural gas in Texas during the month of May 1940, continuing at about the April level, amounted to 4,056,696,000 cu. ft. daily, a decline of less than 1 per cent and an increase of 7 per cent over May of last year.

Pipe-line deliveries were down almost 9 per cent for the month but recycling operations continued to expand as a new plant began operations and contributed to an increase of around 17,000,000 cu. ft. daily in the volume of gas processed.

Carbon-black production dropped slightly, while the volume of natural-gasoline manufacture increased about 5 per cent over the previous month.

Pipe-Line Activity

Buckeye Reported Completing New Pumping Station at Lima

Buckeye Pipe Line Co. is completing a new diesel pumping station at Lima, Ohio, near the steam station. Some of the units are already in operation. This is part of an expansion program which included the recent laying of an additional crude-oil line from Lima to Toledo.

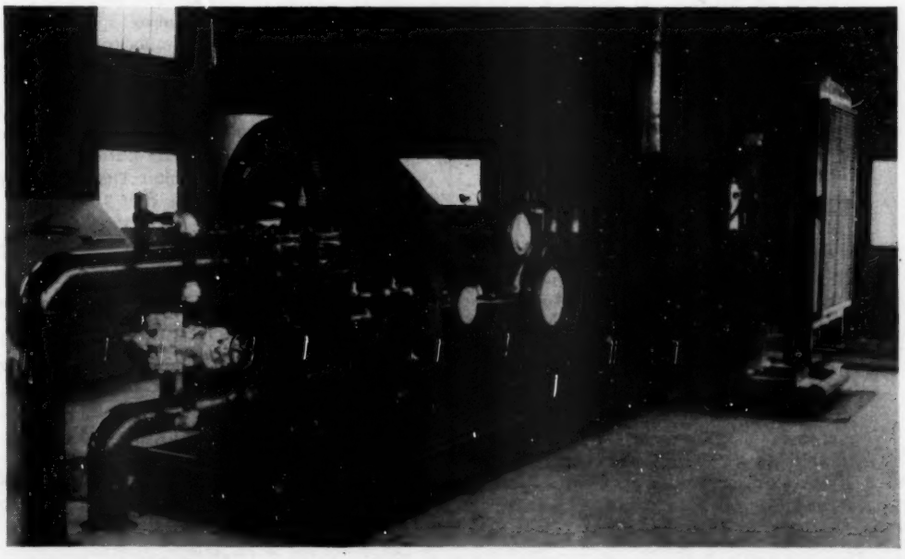
Will Construct Crude-Oil Pipe Line From Lance Creek to Newcastle

Scheduled to get under way shortly is a crude-oil pipe line from the Lance Creek oil field to Newcastle, Wyo., permit for which has been obtained from the Public Service Commission by a group of business men acting under the name of Jack Ward. Mr. Ward is a partner with C. D. Jannewein, of Manville, Wyo., in the Manville Crude Oil Co.

The proposed line will run in a northeasterly direction across Niobrara County, and will be approximately 62 miles long. The preliminary estimate of the cost of the line is $125,000 to $185,000. It is expected that construction will start as soon as bids can be secured and the preliminary survey completed. Construction will be by contract, and contractor will furnish all material, ditch, backfill, etc., and will provide the necessary booster stations. Harold H. Clark will be the engineer in charge, and headquarters will be Manville, Wyo., with field offices at Lance Creek and Newcastle.

Shamrock Nearing Completion Of New Panhandle Carrier

AMARILLO, Tex.—Completion of its new 35-mile pipe line from the Stinnett area in Hutchison County to its McKee refinery in Moore County is expected by Shamrock Oil & Gas Corp. by this week end. The 5-in. line was laid due to an oil shortage in the Moore County fields, so that during past months the company has been buying 3,000 bbl. daily from the Phillips Petroleum Co. The company will now purchase this amount in the Hutchison County field and transport the crude through the new carrier.



Pipe-line pump and engine in one of the world's busiest stations; the Shell station in the Salem, Ill., field

Service on Active Fields

Stoltenberg Pool, Ellsworth County, Kansas

Compiled by The Oil and Gas Journal

Approved name

Stoltenberg.

Geographic location

The pool is located in western Ellsworth County, central Kansas, about 10 miles southwest of the town of Ellsworth, county seat.

Principal towns

Holyrood, nearest town to the field, about 3 miles south of production in the southeast extension area and about 4 miles south of the field proper, has a population of about 550. Ellsworth to the northeast has a population of 2,203. Great Bend is approximately 25 miles southwest, and Wichita is about 120 miles to the southeast by highway.

Highways and roads

The immediate area is served by township-line roads in fair condition. An all-weather road runs north and south through the field, connecting on the north with U. S. Highway 40 between the towns of Ellsworth and Wilson, and on the south going through Holyrood to a connection with state Highway 4 at Bushton.

Railroads serving the area

Nearest railroad connection is at Holyrood, whence a line of the Santa Fe runs southeastward to McPherson and Lyons. An east-west line of the Union Pacific runs between Ellsworth and Wilson, and a branch of the Frisco runs south from Ellsworth through Lorraine, a few miles east of Holyrood, to Lyons.

Cities and towns where supply houses have branches

Great Bend to the southwest and Russell, about 30 miles to the northwest, are important distributing centers. Supply houses also are located at Holyrood, Bushton, Lyons, and Chase, all within short driving distance of the field.

Trucking companies

Several of the Stoltenberg operators use company trucks only. Trucking companies serving the area are located at Great Bend, Russell, Lyons, and McPherson.

Hotels and accommodations

Good hotels and housing accommodations are available at Great Bend, Lyons, Hoisington, and Russell, all within an hour's driving distance of the field. Limited accommodations are available at Holyrood, Bushton, and Claflin.

Schools and churches

Public schools typical of the state serve the several towns in the district.

Fuel supplies

There are no electric power or gas lines serving the field, as yet. Stoltenberg operators use oil for fuel.

DEVELOPMENT

Development to date

The pool was discovered in June 1931, when Palmer and Gypsy Oil Co. completed No. 1 Stoltenberg, C SW Section 22-16-10w, in Arbuckle lime. The second well was completed soon thereafter by Derby Oil Co. Development was slow for several years, but activity began to increase during the past year when lease expiration dates neared. Landowners, who had become oil-wise, hiked their prices to such an extent that many operators decided it was cheaper to drill on their leases than to renew them for long periods. As a result, Stoltenberg became a busy Kansas area, with several extensions being recorded in recent months. Production has been proven on 24 quarter sections and limits of the field have not been determined. The producing area is spotted and it is not unusual for oil wells to be offset by dry holes.

Future development

The development is following a southeast-northwest trend, the productive limits of which are yet uncertain. It seems likely that with future drilling the Southeast Stoltenberg, Wilkins, and Stratman pools to the southeast may be connected to Stoltenberg. Recent extensions to the north and northwest have opened considerable territory in those directions to development. Because of its spotted character, it is difficult to make an accurate forecast of the prospective extent of the productive area but indications are it will become one of the larger fields of the state.

Completions to date

The July report of the Corporation Commission listed 39 producing wells in the Stoltenberg pool and 1 in Northwest Stoltenberg pool, with ownership, number of wells, potential and May crude runs as follows:

Operator—	No. wells	Potential	May runs
Atlantic Refining Co.	2	6,000	1,118
Aylward Production Co.	2	5,335	1,005
Derby Oil Co.	3	159	1,489
Duwe & Farris	1	3,000	1,013
H. V. Elwell	1	566	961
Gulf Oil Corp.	4	9,010	2,331
Indian Territory Illuminating Oil Co.	3	6,015	2,013
Magnolia Petroleum Co.	2	3,063	478
I. W. Murfin	1	640	507
Phillips Petroleum Co.	4	2,447	1,731
Prunty Production Co.	1	3,000	379
Spring Rose Drilling Co.	1	3,000	
Stanolind Oil & Gas Co.	14	4,701	5,598
Texas Co.	1	1,366	448
Total	40	48,302	19,071

Number of operations

As of July 1 there were 12 operations, including locations, rigs, and drilling wells in the Stoltenberg and Northwest Stoltenberg areas.

Lease ownership

In addition to the operators listed, lease owners include Aladdin Petroleum Co., Barnsdall Oil Co., Beardmore & Rosenthal, Bruce Oil Co., Carter Oil Co., Cities Service Oil Co., Lario Oil & Gas Co., Lauck & Moncrief, Marylyn Oil Co., Prunty Production Co., Skelly Oil Co., Stodder and others, Texas Co., and Vickers Petroleum Co.

GENERAL GEOLOGY

The Stoltenberg pool is on the northeast margin of the Central Kansas uplift. Production is along a southeast-northwest trend, parallel to known granite ridges on the uplift. No granite highs in the field have been found, however, as the Arbuckle lime has not been penetrated. The producing horizon probably is an old truncated surface, with different beds of Arbuckle lime underlying the Simpson zone. Tops of the Arbuckle vary considerably in various wells scattered over the field. The attitude of the beds is not horizontal. The Arbuckle producing horizon is found at an approximate depth of 3,330 ft.

DRILLING CONDITIONS

Derricks

Drilling is done with either 94-ft. or 122-ft. derricks by most operators. Derby Oil Co. drills with slim-hole derricks.

Types of drilling equipment

Rotary and slim-hole rotary rigs are used, with multicylinder drilling engines and horizontal diesels. Fuel oil and diesel power is used.

Speed and cost of drilling

From 15 to 20 days' time usually is required in drilling and com-

pleting a well at Stoltenberg. With slim-hole equipment, rig may be set up and surface casing run by first night. Contract prices vary from $2.65 a foot with slim-hole equipment to $3 to $3.25 a foot with conventional equipment. Cost of completing a slim-hole test ranges from $17,000 to $17,500, drilled and equipped, and holes drilled with conventional equipment cost from $20,000 to $25,000, using 7-in. pipe.

Character of mud

The usual mud runs from 5 to 7 seconds viscosity. It carries a weight of 10 or 11 lb. to a gallon. Bentonite-base muds are used. If the salt section is walled off, operators experience little trouble if sufficient mud is used.

Casing program

Usual practice is to run from 550 ft. to 700 ft. of surface casing to shut off Dakota sand. Size of surface pipe varies from 7-in. to 10-in., with some operators using 8-in. to 12-in. pipe. Some operators run full oil strings of 7-in. pipe to the pay, others use 7-in. and 5½-in. casing. In slim-hole tests, operators set 4½-in. pipe on top of the Arbuckle horizon.

Types of bits used

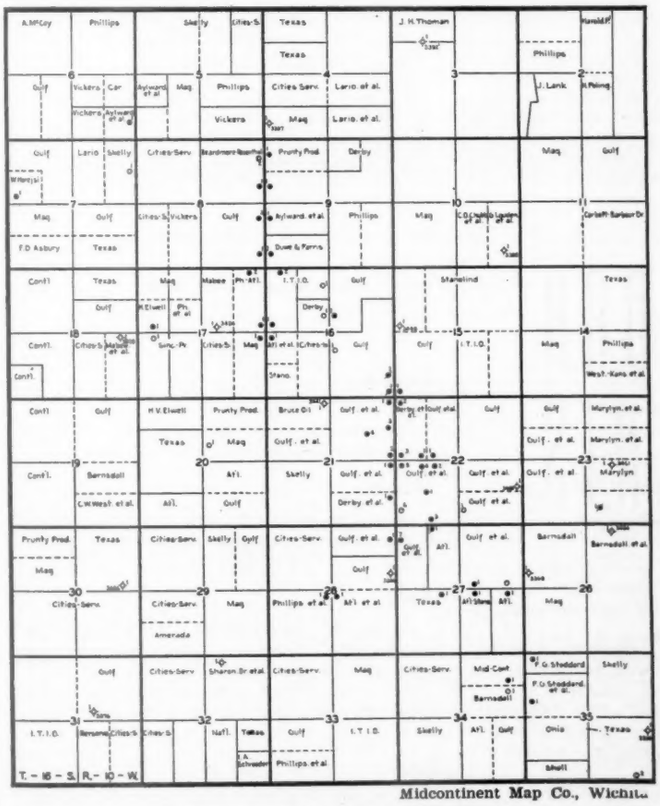
Most of the drilling is done with rock bits, the type varying with the drilling contractors. From 11 to 13 bits usually are required for a well.

Completion methods

A close watch is kept on drilling changes, drillers pick tops and circulate on drilling changes. In case a well is checking low or is doubtful, it is cored before setting casing. Pipe is set and cemented on top of pay with rotary, which then is removed and cable tools installed. Next step is to drill plug and drill into formation. Penetration of the pay varies, to bit going in only sufficiently to get good production and yet avoid water level. Penetration ranges from 5 to 35 ft.

Shooting and acidizing

Practically all wells are acidized, although one good producer was completed naturally. From 500 to 7,000 gal. of acid is used, the wide variance being due to different characteristics of the pay in different wells. It is expected that more wells may be completed naturally in the future, if good natural production is indicated. Unless it is important to operators to complete a maximum well, they may defer use of acid if natural production is fair. A few wells were shot when there was no reaction to acid.



Midcontinent Map Co., Wichita

Stoltenberg pool, Ellsworth County, Kansas

PRODUCING PRACTICES

Method of producing oil

No wells flow naturally, all being on pump. Drawdown methods are used to establish potentials on new wells. Some of the older wells were equipped with 3-in. tubing when physical potential tests were made. Derby Oil Co. uses 2-in. to 2½-in. upset tubing in slim holes.

Separators and tankage

No separators have been used yet. Tankage includes 500 to 750-bbl. gun barrels, and wood and steel stock tanks of 200 to 250-bbl capacity.

Water conditions

Water troubles have been avoided in the newer wells by not drilling down to the water table and by no excessive pumping. The older wells are making oceans of water, coming with the oil through the formation. There is a water drive in the Arbuckle formation. Long strings of surface pipe are set to shut off Dakota water.

Bottom-hole pressures

Bottom-hole pressures range from 700 to 900 lb. to the square inch, at an average fluid level of 3,100 ft. Gas practically is nonexistent.

GENERAL DATA

Spacing

Wells drilled in the new development are on 20-acre spacing, a special agreement of operators on that spacing having been approved by the state Corporation Commission. A majority of the older wells were drilled on 10-acre spacing.

Daily allowable

Stoltenberg wells were given a May allowable of 0.54 per cent.

Pipe-line outlet

Stanolind Pipe Line Co. has a line into the field.

Properties of crude

An analysis of Stoltenberg crude, as announced by the U. S. Bureau of Mines:

Sample 35068—Arbuckle silicious limestone—3,320 ft.

General Characteristics

Specific gravity, 0.802 — A.P.I. gravity, 44.9
Sulfur, per cent, 0.29 — Color, greenish black
Saybolt University viscosity at 77° F., 36 sec.; at 100° F., 36 sec.

Distillation, Bureau of Mines, Hempel Method

Distillation at atmospheric pressure, 738 mm. First drop, 38° C. (100° F.)

Fraction No.	Cut at °C.	Cut at °F.	Per cent	Sum per cent	Sp. gr. 60/60° F.	°A.P.I. 60° F.	S.U. visc. 100° F.	Cloud test °F.
1	50	122	5.2	5.2	0.656	84.2	...	...
2	75	167	5.9	11.1	.659	83.2	...	...
3	100	212	7.6	18.7	.693	72.7	...	...
4	125	257	8.4	27.1	.723	64.2	...	...
5	150	302	6.6	33.7	.743	58.9	...	...
6	175	347	5.4	39.1	.763	54.0	...	...
7	200	392	5.7	44.8	.780	49.9	...	...
8	225	437	4.6	49.4	.796	46.3	...	...
9	250	482	5.2	54.6	.810	43.2	...	...
10	275	527	5.9	60.5	.823	40.4	...	...
Distillation continued at 40 mm.								
11	200	392	5.0	65.5	0.840	37.0	41	15
12	225	437	5.2	70.7	.848	35.4	45	30
13	250	482	4.3	75.0	.861	32.8	57	50
14	275	527	3.6	78.6	.873	30.6	83	65
15	300	572	4.0	82.6	.884	28.6	140	85
Residuum	...	...	16.6	99.2	.951	17.3	...	...

Carbon residue of residuum, 8.8 per cent; carbon residue of crude 1.5 per cent.

Approximate Summary

	Per cent	Sp. gr.	°A.P.I.	Viscosity
Light gasoline	18.7	0.672	79.1	.....
Total gasoline and naphtha	44.8	.717	65.9	.....
Kerosene distillate	15.7	.811	43.0	.....
Gas oil	9.6	.845	36.0	.....
Nonviscous lubricating distillate	7.9	.853-.876	34.4-30.0	50-100
Medium lubricating distillate	4.6	.876-.890	30.0-27.5	100-200
Viscous lubricating distillate	.....	.....	.....	Above 200
Residuum	16.6	.951	17.3	.....
Distillation loss	0.8	.....	.....	.....

PROGRAMS AND MEETINGS

Technical Group of Ark-La-Tex Division W.P.R.A. to Meet Friday

The regular monthly meeting of the technical group of the Ark-La-Tex division of Western Petroleum Refiners Association will be held on Friday, July 12, 1940, at the Randolph Hotel, El Dorado, Ark., beginning at 4 p.m.

A paper entitled "Suspended Walls," by H. O. Johanson, of M. H. Detrick Co., of Tulsa, will be the special feature of this meeting. The usual open-forum discussion will follow.

The paper to be presented by Mr. Johanson will embody abundant information and factual data of value and importance to all refiners, including a discussion of the failures of solid refractory walls, their causes and how they can be eliminated; also heat release on both boilers and stills, as well as vital facts concerning furnace design, and the trend of modern cracking-still design. In addition, progress made in the refractory and suspended-wall industry, along with that in the metallurgical field, with particular reference to the design of new cracking stills, will be outlined, and the thought and work behind these developments pointed out.

Scouts Executive Committee Inducts New Officers Into Office

The executive committee of the National Oil Scouts and Landmen's Association met at the Adolphus Hotel, Dallas, Tex., June 29, for the purpose of inducting into office the new officers elected at the Hot Springs, Ark., convention held the latter part of May.

Officers present were C. J. Bradley, president (Texas Co.), Tyler, Tex.; H. L. Eversberg, first vice president (Shell Oil Co., Inc.), Baton Rouge, La.; R. H. Weaver, second vice president (Sun Oil Co.), Jackson, Miss.; C. P. Chisholm, chairman board of directors (Pure Oil Co.), Houston, Tex.; R. L. Denton, secretary-treasurer (Magnolia Pipe Line Co.), Kilgore, Tex.; and E. J. Raisch, executive secretary, Austin, Tex.

Various plans were discussed for advancing the interests of the association for the coming year, of particular importance being the decision to concentrate all its affairs immediately at headquarters which have been established at Austin, Tex., under direction of the executive secretary.

Southwestern District Meeting of A.P.I. Scheduled for Shreveport in February

The officers of the southwestern district, A.P.I., Division of Production, have decided on the location and time for the regular spring meeting of the district, which will be held in Shreveport, La., February 27 and 28, in the Washington-Youree Hotel. E. P. Hayes, Texas Co., Houston, Tex., has been appointed chairman of the program committee, complete personnel of which will be announced later, as will the committee on arrangements and publicity.

Canadian Gas Association Holds Thirty-third Annual Convention

With the Pacific Coast Gas Association participating, the Canadian Gas Association held its thirty-third annual convention at Jasper Park Lodge, Alberta, July 3-5. In addition to practical papers on natural and manufactured-gas problems, the program included a number of entertainment features, including a golf tournament and the annual banquet.

Speller Named Chairman Of Corrosion Committee

At the second annual meeting of the American Coordinating Committee on Corrosion, held on June 27, in Atlantic City, N. J., Dr. F. N. Speller of Pittsburgh, Pa., consultant on corrosion, was formally named chairman for the coming year. Dr. R. M. Burns, of the Bell Telephone Laboratories, was named vice chairman, and Dr. G. H. Young, of Mellon Institute of Industrial Research, secretary-treasurer. Committee headquarters are located at 4400 Fifth Avenue, Pittsburgh. The committee was organized 2 years ago to coordinate research activities in this extremely important field, and cooperation has been promised by all the major companies and independent laboratories who are actively engaged in corrosion investigations. At the recent meeting the American Welding Society, the Chemical Foundation, the Engineering Foundation, and the National Research Council were elected to membership.

Petroleum Tax-Group Meeting To Be Held at Ponca City

Third annual midsummer meeting of oil-company tax representatives in the Oklahoma-Kansas area will be held July 22 at the Wentz Camp and Rock Cliff Country Club, 4 miles north of Ponca City, Okla. The business meetings on Monday will be preceded by a week-end outing at the Wentz Camp. T. W. Prentice of the L. H. Wentz company is in charge of arrangements; Virgil Smith of Continental Oil Co., in charge of registration and housing; O. H. Schoenwald, L. H. Wentz, oil division, in charge of camp arrangements; J. E. Perkins of Northern Oklahoma Gas Co., attendance; and J. A. McNeese of Continental, in charge of the dinner.

This year, members of the Natural Gas Accountants Association will join the petroleum tax group, participating in all business meetings as well as the week-end outing. The various business meetings will be held at the Rock Cliff Country Club for the exclusive use of the oil tax representatives and the natural-gas accountants. The regular monthly tax dinner will be held in the Continental Oil Co. cafeteria at 6:30 in the evening.

Mississippi Oil Exposition Planned By Service Clubs During August

The Yazoo City Lions Club, cooperating with other clubs in the county and state, will stage the first annual "Mississippi Oil Exposition" at Yazoo City, August 28 and 29.

Governors of neighboring states, U. S. senators, congressmen, president of the Illinoic Central Railroad, a large number of the leading business men, and leaders in the oil industry, operating in Mississippi, have personally endorsed, and guaranteed their wholehearted support to this celebration. The program includes exhibits and lectures for the oil people, entertainment parades, crowning of the king and queen of the oil exposition and the king and queen of oil, to be selected from members of the oil fraternity, free barbecue, dances, rodeo and speeches by celebrities with many other attractions that will be attractive to everyone who attends.

CALENDAR OF EVENTS

September

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, Spokane, Wash., September 3-5.

AMERICAN CHEMICAL SOCIETY, Detroit, Mich., September 9-13.

NATIONAL PETROLEUM ASSOCIATION, thirty-eighth annual meeting, Hotel Traymore, Atlantic City, N. J., September 18-20.

NATIONAL LUBRICATING GREASE INSTITUTE, annual convention, Stevens Hotel, Chicago, September 30-October 1.

October

NORTH AMERICAN GASOLINE TAX CONFERENCE, Whitley Hotel, Montgomery, Ala., October 3-5.

WESTERN PETROLEUM REFINERS ASSOCIATION, regional technical meeting, Wichita, Kans., October 4.

AMERICAN GAS ASSOCIATION, Atlantic City, N. J., October 7-10.

NATIONAL SAFETY CONGRESS, Stevens Hotel, Chicago, October 7-11.

AUTOMOBILE MANUFACTURERS ASSOCIATION, Auto Show, New York, October 12.

INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA, eleventh annual meeting, Dallas, Tex., October 16-18.

PETROLEUM DIVISION, A.I.M.E., October 24, 25 and 26, Tulsa.

WESTERN PETROLEUM REFINERS ASSOCIATION, regional technical meeting, Shreveport, La., October 25.

TEXAS MID-CONTINENT OIL AND GAS ASSOCIATION, annual convention, celebrating Texas oil's forty-fifth birthday, Fort Worth, Tex., October 21-November 2.

November

AMERICAN PETROLEUM INSTITUTE, twenty-first annual meeting, Stevens Hotel, Chicago, November 11-15.

1941

February

AMERICAN PETROLEUM INSTITUTE, southwestern district regular spring meeting, Washington-Youree Hotel, Shreveport, La., February 27-28.

March

AMERICAN SOCIETY FOR TESTING MATERIALS, Hotel Mayflower, Washington, D. C., March 3-7.

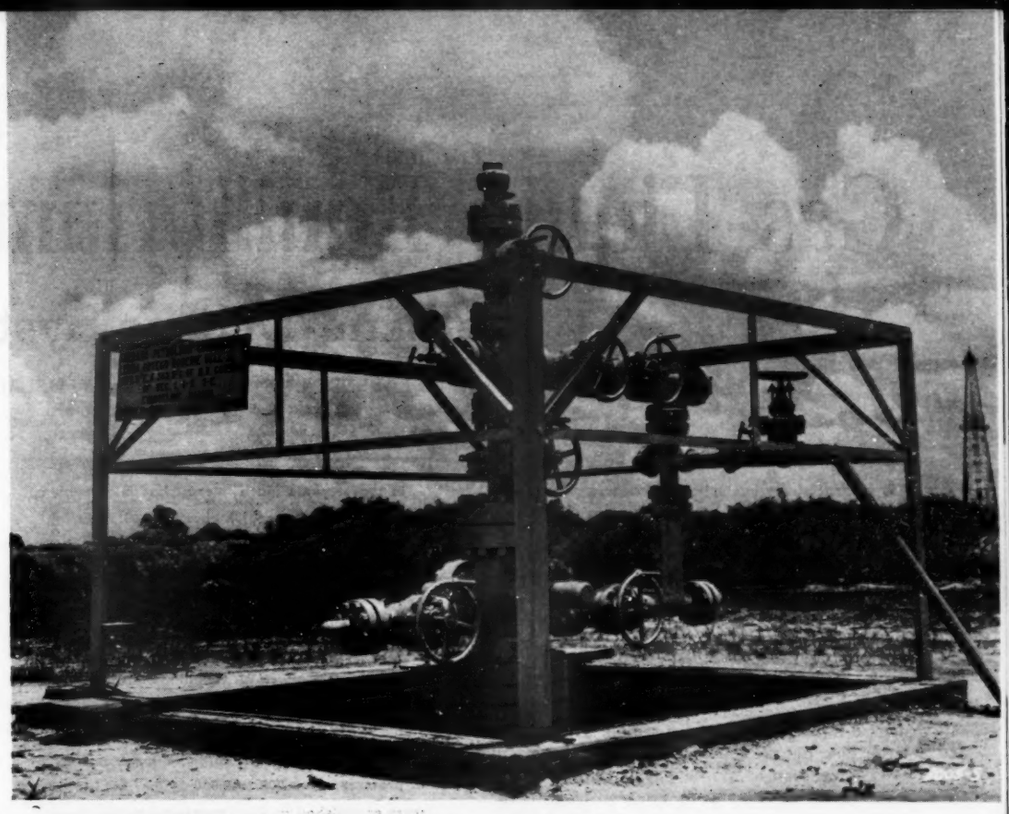
April

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, twenty-sixth annual meeting, Rice Hotel, Houston, Tex., April 2, 3, and 4.

NATIONAL PETROLEUM ASSOCIATION, semi-annual meeting, Hotel Cleveland, Cleveland, Ohio, April 24-25.

June

AMERICAN SOCIETY FOR TESTING MATERIALS, forty-fourth annual meeting, Palmer House, Chicago, June 23-27.



Christmas trees on wells in the high-pressure fields of today provide a quite complicated arrangement of valves and fittings, and in many fields provide much of the picturesque setting formerly offered by rows of derricks in the flush fields of years ago. This installation with its sturdy guard rails is in the Ville Platte field of Evangeline Parish, Gulf Coast Louisiana

ENGINEERING & OPERATION

JULY 11, 1940

In This Section

GAS-LIQUID EQUILIBRIUM CONSTANTS: METHANE-DECANE SYSTEM
By H. M. Lavender, B. H. Sage and W. N. Lacey ..... Page 48
Distribution of heavier hydrocarbons between gas and liquid phases in equilibrium become pertinent information in predicting the effect of variations in producing conditions. "Equilibrium constants" in the methane-decane system were established at various temperatures and pressures.

DEPROPANIZATION OF BUTANE
By L. J. Coulthurst ..... Page 50
Elimination of propane from motor fuel remains a problem from the viewpoint of refinery economics. Where possible, it may be advantageous to remove the propane from the butane itself.

NEW PORTABLE RIG USES TORQUE CONVERTER AND 90-FT FOLDING MAST
By T. P. Sanders ..... Page 53
A trailer-mounted rig designed for 6,000-ft. drilling is being used in Illinois. Unusual features incorporated are a hydraulic torque converter, hydraulic breakout lines and 40-in. rotary head.

OPERATING EFFICIENCY INCREASED AT MANVEL BY STANDARDIZATION
By Neil Williams ..... Page 57
Standardization of lease production equipment by one company in this Gulf Coast field has contributed greatly to efficient operating practices as well as reducing warehouse stocks.

SUBSURFACE-PUMP PERFORMANCE
By S. B. Sargent ..... Page 58
A number of factors influencing subsurface-pump operation cannot be readily determined without use of instruments. Use of these instruments and performance charts obtained are discussed.

OPERATING IDEAS ..... Page 54
CHART FOR COMPUTING GAS VOLUMES ..... Page 65
SUGGESTED FIELD PRACTICES—By T. P. Sanders Page 66
PROGRESS IN METALS—By W. L. Nelson ..... Page 69

Gas-Liquid Equilibrium Constants

Methane-Decane System

By H. M. LAVENDER,* B. H. SAGE, and W. N. LACEY
California Institute of Technology

In recent years much interest has been shown in the hydrocarbons of higher molecular weight in natural gases produced from formations characterized by moderately high pressure and temperature. The distribution of such heavier hydrocarbons between gas and liquid phases in equilibrium becomes pertinent information in the prediction of the effect of variations in producing and processing conditions. The "equilibrium constants" for each of the components in the methane-decane system at three temperatures and at pressures from 200 to 2,000 lb. per sq. in. abs. were established and are presented in this paper.

THE prediction of the phase behavior of the paraffin hydrocarbons in heterogeneous multicomponent systems is of interest in many of the operations involved in the production and refining of petroleum. The behavior of the lighter hydrocarbons in both simple[1] and complex[2] mixtures has been investigated for certain specific cases. However, at the present time there appears to be no information available relating to the phase behavior of pure paraffin hydrocarbons heavier than heptane[3,4] except for some data upon the behavior of mixtures of methane and decane[5] in the condensed liquid and two-phase region. However, the latter data did not include information concerning the composition of the dew-point gas. Since such information is of value it was considered worth while to determine the composition of dew-point gas in the methane-decane system throughout a part of the range of temperatures and pressures included in production practice. The composition of dew-point gas in this system was determined at 100°, 160° and 220° F. at pressures from 200 to 2,000 lb. per sq. in.

Method

The method used consisted essentially of the withdrawal of samples of the gas phase of a heterogeneous mixture of methane and decane which was at equilibrium at the desired pressure and temperature. The arrangement of the apparatus is presented schematically in the accompanying Fig. 1. The mixture of methane and decane was

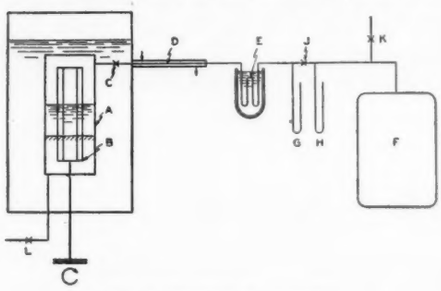


Fig. 1—Diagram of apparatus

confined over mercury within the vessel *A* where equilibrium was obtained by means of the mechanically driven agitator *B*. The vessel was immersed within an oil bath whose temperature is controlled within 0.1° F., by means of a mercury-in-glass regulator used in conjunction with appropriate electrical control equipment. The sample was removed from the chamber *A* through the valve *C* into the steam-heated tubing *D*. From the tubing *D* the gas at a pressure below 7 lb. per sq. in. abs. was passed through the double pass trap *E* which was immersed in a mixture of solid carbon dioxide and acetone. The quantity of methane leaving the trap was ascertained by means of the change in pressure within the vessel *F* of constant known total volume. The pressures in the trap *E* and the vessel *F* were ascertained by means of the mercury-in-glass manometers *G* and *H*. The flow of gas from the trap *E* into the vessel *F* was controlled by means of the stopcock *J*. The apparatus was evacuated through the stopcock *K* at the conclusion of a set of measurements by means of a mercury diffusion pump.

A detailed description of the apparatus employed to bring the heterogeneous mixture to equilibrium and to measure the prevailing temperature and pressure is available[6]. It is believed that in this instance the temperature of the system was ascertained within 0.3° F., relative to the International Platinum Scale and the pressures were measured with an uncertainty not greater than 0.4 per cent. After equilibrium had been attained in chamber *A* the vessel *F* as well as the trap *E* of Fig. 1 was evacuated. The trap was then immersed in a mixture of solid carbon dioxide and acetone and a slow flow of gas from the equilibrium chamber *A* was started. The pressure within this chamber was maintained at a constant value by the addition of mercury through valve *L* from an outside source. A sufficient quantity of gas was withdrawn from chamber *A* to obtain at least 0.15×10^{-3} lb. (0.068 gram) of decane in the trap *E*. The stopcock *J* was then closed and the trap was allowed to warm up to room temperature. It was again immersed in the solid carbon dioxide, acetone mixture and after evacuation of the vessel *F*, the additional quantity of methane obtained from the trap was determined. The trap *E* was again allowed to warm up to room temperature and after recooling it to solid carbon dioxide temperature it was evacuated to a pressure of approximately 10^{-4} in. of Hg in order to remove the last traces of methane. Calculations indicated that this procedure would remove nearly all of the methane from the decane in the trap *E*. The trap was removed from the flow circuit and the gain in weight determined. In order to ascertain the effect of repeated warming, cooling and evacuation, these processes were repeated three additional times in one instance and the resulting loss in weight was less than 0.9×10^{-4} lb. (0.4 mg.). It is believed that this procedure yielded a reasonably satisfactory separation of methane from the decane especially since the latter hydrocarbon was present only in small quantities.

At the higher temperatures measurable quantities of mercury were collected in the trap. Under these circumstances it was necessary to volatilize the decane by prolonged evacuation at pressures well above the vapor pressure of mercury at room temperature and determine the quantity of the hydrocarbon by the loss in weight of the trap. At the highest temperature (220° F.) the weight of mercury collected was approximately 20 per cent of the weight of decane. During the initial measurements some difficulty was experienced due to the accumulation of water in the trap. However, after adequate precautions to dry the methane were taken, no difficulties from this source were experienced. Completeness of drying of the gas was ascertained by passing the dried methane through the trap at the temperature of solid carbon dioxide and noting the gain in weight. In general, the passage of the quantity of methane normally employed for an analysis caused an increase in weight of less than 0.45×10^{-4} lb. (0.2 mg.).

It is difficult to ascertain precisely the uncertainty of measurement involved in these measurements. From the agreement of the individual experimental points it is believed that uncertainties in the mol fraction of decane as large as 12 per cent were encountered at 100° F., but that these were reduced to about 5 per cent at 220° F. This large percentage uncertainty results from the difficulty involved in the accurate absolute determination of a small quantity of decane present with a relatively large amount of methane.

Materials

The methane employed in this investigation was obtained from the Buttonwillow gas field in California. The methane as received from the field was saturated with water and contained approximately 0.3 mol per cent of carbon dioxide and less than 0.03 mol per cent of the heavier hydrocarbons. This gas at a pressure in excess of 500 lb. per sq. in. was successively passed through granular calcium chloride, sodium hydroxide, activated charcoal, Ascarite and magnesium perchlorate to remove water, carbon dioxide and the heavier hydrocarbons. Furthermore, the gas at this pressure was also passed through a coil of metal tubing cooled to the temperature of solid carbon dioxide. It is believed that this procedure reduced the impurities present in the methane employed to less than 0.1 mol per cent and reduced the materials which would be condensed at the temperature of solid carbon dioxide to a negligible value.

TABLE 1—COMPOSITION OF DEW-POINT GAS IN THE METHANE-DECANE SYSTEM

100° F.		160° F.		220° F.	
Pressure lb./sq. in.	Composition mol fraction decane	Pressure lb./sq. in.	Composition mol fraction decane	Pressure lb./sq. in.	Composition mol fraction decane
514	0.476×10^{-3}	370	1.333×10^{-3}	102	10.40×10^{-3}
962	0.335	608	1.179	210	7.93
1,023	0.324	1,042	1.186	305	5.78
1,502	0.669	1,087	1.225	520	4.82
2,004	0.966	1,594	1.513	1,026	4.13
....	....	2,001	2.766	1,480	4.76
....	....	....	....	2,043	6.35

*Shell Petroleum Fellow, 1938-39.

TABLE 2—COMPOSITION OF COEXISTING PH ASES IN THE METHANE-DECANE SYSTEM

Pressure lb./sq. in.	100° F. Composition mol fraction decane		100° F. Equilibrium constant		160° F. Composition mol fraction decane		160° F. Equilibrium constant		220° F. Composition mol fraction decane		220° F. Equilibrium constant	
	Liquid	Gas	Methane	Decane	Liquid	Gas	Methane	Decane	Liquid	Gas	Methane	Decane
14.7	0.9948	4.76×10^{-3}	191	4.88×10^{-3}	0.9954	27.6×10^{-3}	212	27.7×10^{-3}	0.9962	117×10^{-3}	232	117×10^{-3}
50	0.9824	1.46	56.6	1.49	0.9843	8.42	63.0	8.55	0.9859	34.6	68.6	35
100	0.9653	0.81	28.8	0.84	0.9688	4.34	31.9	4.48	0.9717	17.8	34.7	18.3
250	0.9170	0.41	12.1	0.45	0.9251	1.95	13.3	2.11	0.9311	7.32	14.4	7.86
500	0.8473	0.32	6.54	0.37	0.8601	1.25	7.14	1.46	0.8701	4.62	7.66	5.31
750	0.7904	0.32	4.77	0.41	0.8063	1.12	5.16	1.39	0.8196	3.97	5.52	4.84
1,000	0.7424	0.38	3.88	0.51	0.7613	1.16	4.19	1.52	0.7772	4.01	4.47	5.16
1,250	0.6979	0.48	3.31	0.68	0.7185	1.31	3.55	1.83	0.7357	4.34	3.77	5.90
1,500	0.6511	0.60	2.86	0.92	0.6760	1.74	3.08	2.57	0.6936	4.81	3.25	6.93
1,750	0.6060	0.79	2.54	1.30	0.6338	2.07	2.73	3.26	0.6515	5.45	2.85	8.37
2,000	0.5621	1.05	2.28	1.86	0.5913	2.38	2.44	4.02	0.6094	6.27	2.54	10.3

The decane was obtained from the Eastman Kodak Co. and exhibited a boiling range of approximately 0.3° F. at atmospheric pressure. Before use, this hydrocarbon was refluxed in a column packed with glass rings for an extended period at a pressure of 0.2 in. of Hg in order to remove any dissolved noncondensable gases. The decane was then distilled into an evacuated steel container from which it was added to the evacuated apparatus. The absolute viscosity of this material at atmospheric pressure and 100° F. was 0.659 centipoise as compared to a value of 0.650 centipoise obtained from the work of Bingham and coworkers[7] for *n*-decane. The specific weight of this sample at 100° F. and atmospheric pressure was 45.0261 lb. per cu. ft. as compared to a value for *n*-decane of 44.746 lb. per cu. ft., determined by Shepard[8]. The index of refraction as determined for the *D* line of sodium was 1.4180 at 65.3° F. which is somewhat higher than the accepted values for *n*-decane but is below the index for a number of the isomers of this material. These data indicate that this material was composed very largely of hydrocarbons containing 10 carbon atoms but probably contained appreciable quantities of material other than *n*-decane.

Experimental Results

The experimental results obtained in this investigation are recorded in Table 1. The composition of the dew-point gas has been recorded as the mol fraction of decane for each of the states studied experimentally. The product of the pressure and the mol fraction of decane in the dew-point gas is presented in Fig. 2 as a function of pressure. It

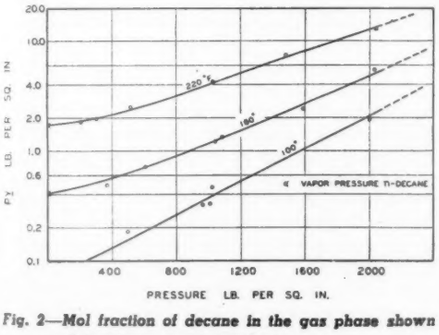


Fig. 2—Mol fraction of decane in the gas phase shown as a mol fraction-pressure product

is seen that there is a better agreement of the experimental points at the higher temperatures which is to be expected since the concentration of decane is much larger under these conditions. The ordinate of Fig. 2 would often be considered as an idealized "partial pressure" of decane and the data indicate a rapid increase in this quantity with an increase in pressure. The values for the vapor pressure of *n*-decane shown on the figure were interpolated from the measurements of Young[9]. The agreement between these data and the extrapolation of the present measurements appears to be well within the experimental uncertainties involved.

If the present data are combined with the information already available[5] concerning the behavior of bubble-point liquid in the methane-decane system the compositions of the coexisting phases may be established. In Table 2 are recorded the composition of the coexisting phases and the gas-liquid equilibrium constants for methane and decane in this system. These data have been recorded for even values of pressure for each of the three temperatures investigated experimentally. Fig. 3 depicts the equilibrium constants for methane

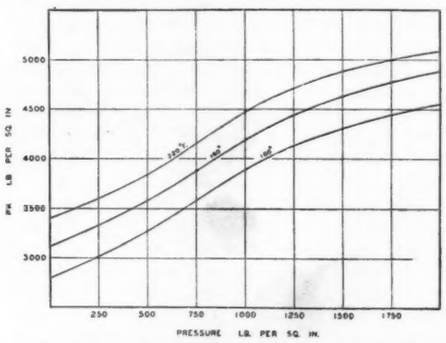


Fig. 3—Equilibrium constant-pressure product for methane

thane as a function of pressure for the several temperatures. In this instance the product of the pressure and the equilibrium constant has been employed in order to represent the latter variable on a larger scale than otherwise would be possible. The equilibrium constants for decane are presented as a function of pressure in Fig. 4. There

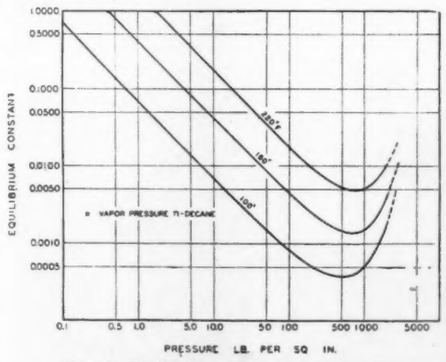


Fig. 4—Equilibrium constant for decane

is a variation of over a thousandfold in this quantity in the range of pressures covered in the figure.

Acknowledgment

The work reported was prosecuted under the sponsorship of the Shell Oil Co., Inc.

Literature Cited

1. Sage, Hicks and Lacey; Drilling and Prod. Practice, 1938, (A.P. I., New York, 1939). p. 386.
2. Katz and Hachmuth; Ind. Eng. Chem., 29, 1072, 1937.
3. Cummings, Stones and Volante; ibid., 25, 728, 1933.
4. Boomer, Johnson and Piercey; Can. Jr. Res., B-16, 396, 1938.
5. Sage, Lavender and Lacey; Ind. Eng. Chem., 32, 743, 1940.
6. Taylor, Wald, Sage and Lacey; The Oil and Gas Journal, 38, No. 13, 46, 1939.
7. Bingham, White, Thomas and Caldwell; Zeit. fur. Phys. Chem., 83, 641, 1913.
8. Shepard, Henne and Midgley; Jr. Am. Chem. Soc., 53, 1948, 1931.
9. Young; Proc. Roy. Irish Acad., 38-B, 65, 1928.

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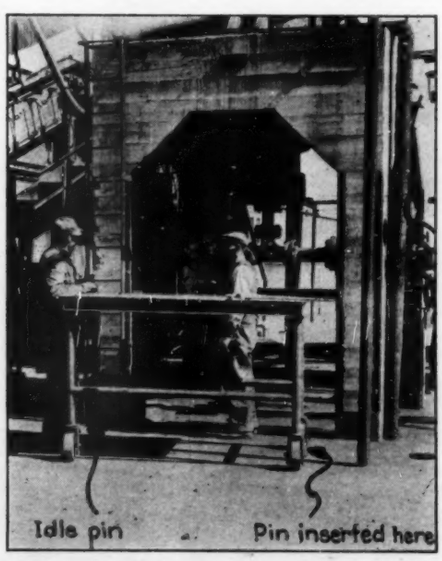
Platform on Rollers to Head Up Cracking Chamber

An unusually high degree of safety and mobility is provided in the all-steel platform shown here. It is used when removing the head-bolts or replacing them under a Dubbs cracking chamber. The platform stands 3½ ft. high and is supported on 8-in. steel rollers. These, in turn, are mounted on swivels to permit easy maneuvering to get the platform in place. The legs of the platform and the lower, horizontal portion of the frame are made by welding together the proper lengths of 2-in. pipe. The upper rectangular part of the frame is 3 by 6 ft. in size and made up of welded U bars set on edge. This welded rectangle is welded to the legs and the steel floor plate rests on the rectangle. Mobility is provided by the large wheels but after the platform is in position under the chamber the wheels may be locked to safeguard against rolling. This is done by inserting ⅝-in. pins about 5 in. long through holes on either side of the swivel and through a hole in each wheel. The pins fit tightly as they are slightly tapered. When not in use each pin is kept in a hole through the 2-in. horizontal pipe support of the platform.



Depropanization of Butane

By L. J. COULTHURST
Design Engineer, Foster Wheeler Corp.

PETROLEUM refining has progressed especially fast in recent years along lines of both chemical rearrangement and chemical synthesis, but the elimination of propane from motor gasoline and its constituents remains a fundamental problem from the point of view of refinery economics. The physical removal is easily accomplished by a topping operation in a depropanizer, but it is not always easy to find the propane-bearing fractions sufficiently concentrated to justify installation of a depropanizing unit.

The chief objection to the presence of highly volatile propane in motor gasoline is its detrimental effect on "front-end" volatility, producing too rapid vaporization in the carburetor and a tendency to cause motor vapor lock, especially in warm weather. This disadvantage is emphasized by the fact that in recent years the trend in automotive gasoline has been toward higher volatility and lower boiling range. Table 1 shows the trend with reference to the 10 and 50 per cent points (i.e., the temperature at which 10 and 50 per cent of the total initial volume will be recovered overhead by A.S.T.M. distillation test). Several years ago the inclusion of a small amount of propane in motor gasoline was not too serious, but with the higher-volatility fuels the modern automobile fuel system will tolerate not only no propane but even less of the heavier butanes than was formerly possible.

Many refiners console themselves with the fact that no propane is to be found in the motor gasoline sold at their service stations. At the same time propane will be found in hydrocarbon streams leaving various processing units and it will of course vaporize at the first opportunity. This usually means that in treating, blending, storing, or transfer operations some of the heavier and more valuable hydrocarbons will be vaporized along with the propane and the former will not be fully recovered in production operations. These "back door" losses often continue for many years without detection except by exhaustive surveys, and refiners should therefore beware if propane is found in any of the hydrocarbon streams that go into the finished product.

Freedom from contamination by propane, while always desirable, is often subject to economic justification. The "back-door" losses from vaporization of valuable constituents along with propane are easily understood, but frequently refiners do not appreciate that the presence of propane actually represents a failure to secure maximum gasoline production while maintaining standard specifications.

Practically all refiners have more butane than they need, but many overlook the substitution value of butane for propane in motor fuel. A barrel of butane has far greater value when added to gasoline than it has alone. Assume, for illustration, that a batch of 100 bbl. of gasoline containing 1 per cent propane is being processed in the refinery. In passing through the various units there may be substituted for this barrel of propane a number of barrels of butane without altering the vapor pressure of the product, according to the approximate values in Table 2.

Thus for a vapor pressure of 12 lb. per sq. in. abs. the volume of gasoline product would now be 104.1 bbl., increasing production by 4 per cent as well as the gross earnings. Since motor gasolines for winter consumption have higher vapor pressures than for summer, it follows from the table that more butane may be substituted in the winter than in the summer. However, it may be advantageous to make the substitution in summer as well as winter. The refiner generally has several methods at his disposal for increasing the butane content of gasoline, at will.

Although propane is commonly removed from the hydrocarbon streams leaving the various units, it may be most advantageous in certain plant arrangements to remove propane from the butane itself, depending on the quantity appearing. This may be illustrated by the recent experience of a prominent southwestern refiner. After installing several large thermal cracking units, this refiner had made a complete refinery butane balance which indicated the advisability of chemical synthesis of the butylenes produced in the cracking units, to form hydrocarbon polymers of high octane number within the boiling range of motor fuel. Consequently a large, nonselective catalytic polymerization unit was erected (see Heat Engineering, February 1938). Butane was segregated as an overhead product from one of the poly-plant fractionating towers and in the summer part of it was stored for boosting volatility of the gasoline sold in winter.

TABLE 1—RECENT TRENDS IN MOTOR GASOLINE*

Regular grade—	1931	1933	1935	1937	1939
10 per cent distillation point	148	139	127	125	127
50 per cent distillation point	255	247	231	240	225
Premium grade—					
10 per cent distillation point	141	142	132	126	127
50 per cent distillation point	246	237	225	219	220

*Courtesy W. T. Ziegenhain, The Oil and Gas Journal, June 8, 1939.

TABLE 2—BUTANE SUBSTITUTION FOR PROPANE

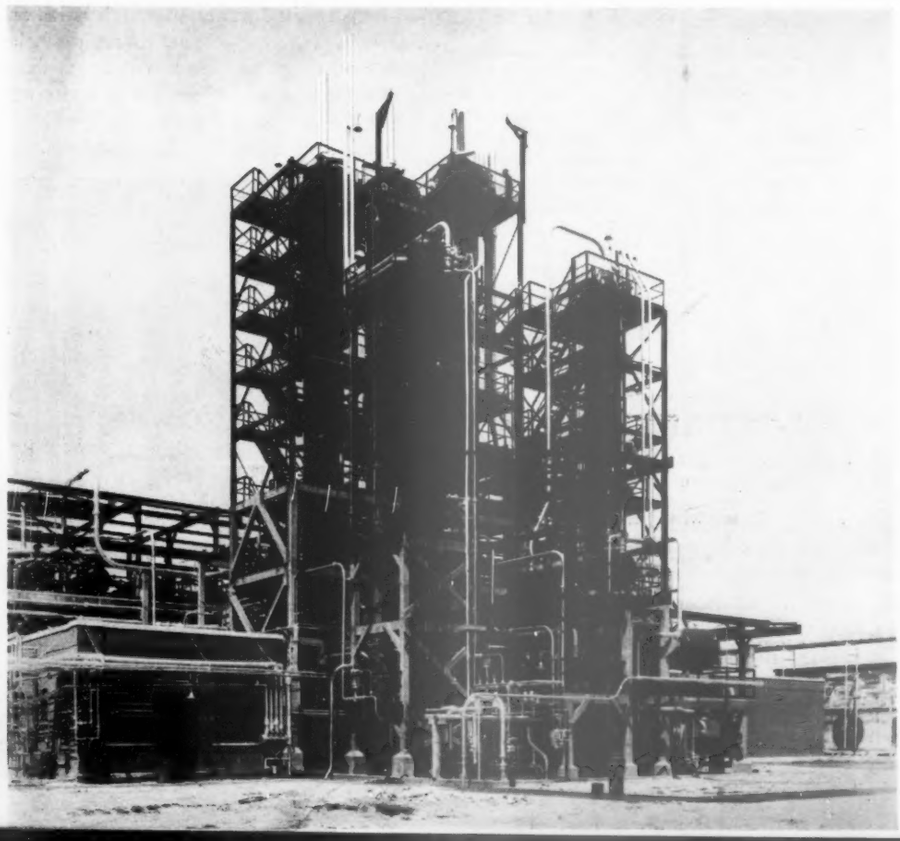
Vapor pressure of final product, lb./sq. in. abs.	8	10	12	14
Barrels butane that may be substituted for 1 bbl. propane	4.7	4.9	5.1	5.3

Following an increase in cracking facilities, more and more of the liquids and gases containing butane, butylenes and lighter compounds were being produced and these were all being processed in the catalytic polymerization unit. Consequently the sum of all the propane contaminations from the various sources was concentrated in the butane. The relative concentration of the propane in the butane was magnified by shrinkage in the butane fraction caused by polymerization of propylene and butylenes to hydrocarbons boiling within the gasoline range.

As a result, the propane was concentrated and easily accessible in the butane taken as an overhead product from one tower. Abundant refrigerated storage capacity was available for retaining the excess butanes under pressure during the summer for winter usage and additional gasoline production meeting standard specifications could easily be obtained if the butane were added.

Under these conditions, another complete refinery butane balance was made. The survey indicated that substitution of butane for the propane contamination would increase gasoline production enough to amply justify the installation of a separate butane depropanizer. This unit with a capacity of 3,700 bbl. per day was designed and erected by Foster Wheeler, who had also installed the main catalytic polymerization plant in this refinery. The butane depropanizer has functioned with entire satisfaction and operating results fully justify the installation of the unit on a firm economic basis.

Butane depropanizer (right) added to the existing catalytic-polymerization plant to remove propane from butane at a point of concentration. At the extreme right is part of the forced-draft cooling tower



New Portable Rig Uses Torque Converter and 90-Ft. Folding Mast

By T. P. SANDERS

A TIRE-MOUNTED drilling rig has been introduced in Illinois, designed for 6,000-ft. drilling, which uses a hydraulic torque converter to combine steam-engine power characteristics with the portability and fuel economy of the internal-combustion engine. Although the rig is mounted on a base small enough to travel on the highways it incorporates a 90-ft. derrick which is raised and lowered completely intact by means of hydraulic cylinders. Other unusual features include hydraulic breakout lines and a rotary head which grips the kelly over a 48-in. length to minimize whipping of the drill stem.

The rig is powered by a Waukesha 190-hp. four-way engine. It can be converted to the use of any of the four popular drilling fuels: butane, natural gas, gasoline, or diesel oil, merely by changing the carburetion.

The crankshaft of the engine is connected directly to a twin-disk fluid drive, often described as a hydraulic torque converter or hydraulic transmission. All services are driven through this torque converter, including the hoist-drum drive, the sand-reel drive, the rotary-head drive, and the breakout-table drive.

Fluid Transmission

Within the torque converter, or fluid transmission, power from the engine is changed to fluid velocity by means of impellers acting on the hydraulic fluid contained in the unit. This velocity, or kinetic energy, acts against impellers keyed to the output shaft to drive the hoist or rotary at a speed depending on the torque encountered.

The most apparent accomplishment of the torque converter is its elimination of shock loads, but its chief purpose is to provide maximum torque for starting heavy loads at low speeds. The steam engine or the d.c. motor, giving maximum torque at minimum speed, represents the ideal power for hoisting service. The internal-combustion engine, giving maximum torque at high speed, is usually supplemented in drilling service with a four to eight-speed transmission in order to make the maximum torque available for low starting speeds.

Disregarding a certain power loss due to fluid slippage, the torque converter is comparable to a transmission with an infinite number of speeds which are automatically changed. Like the steam engine its maximum torque is developed when it is completely stalled. At this point the torque on the output shaft reaches a maximum of about five times the torque on the engine shaft. Under a more or less constant load, such as would be offered by the rotary drive, the speed of the output shaft closely approaches that of the engine shaft and fluid slippage reaches the minimum. A small cooling unit is used with the converter to dissipate the heat caused by slippage.

The sand reel, hoist drum, rotary head, and breakout table are all shaft driven, using flexible couplings, universal joints, and a compact gear system. The rotary head is at a distance of 5 or 6 ft. above ground level and is made to turn either a 3½-in. or 4¼-in. kelly. This head is retractable so that it can be withdrawn in towards the hoist drum when casing is being run or when other operations are in progress that do not call for rotating of the drill stem.

Below the rotary head is the breakout table, which is placed at ground level. This has the appearance of an ordinary rotary table and can be used for rotating pipe or casing if such an operation should become desirable. Casing of 15½-in. diameter will pass through the breakout table.

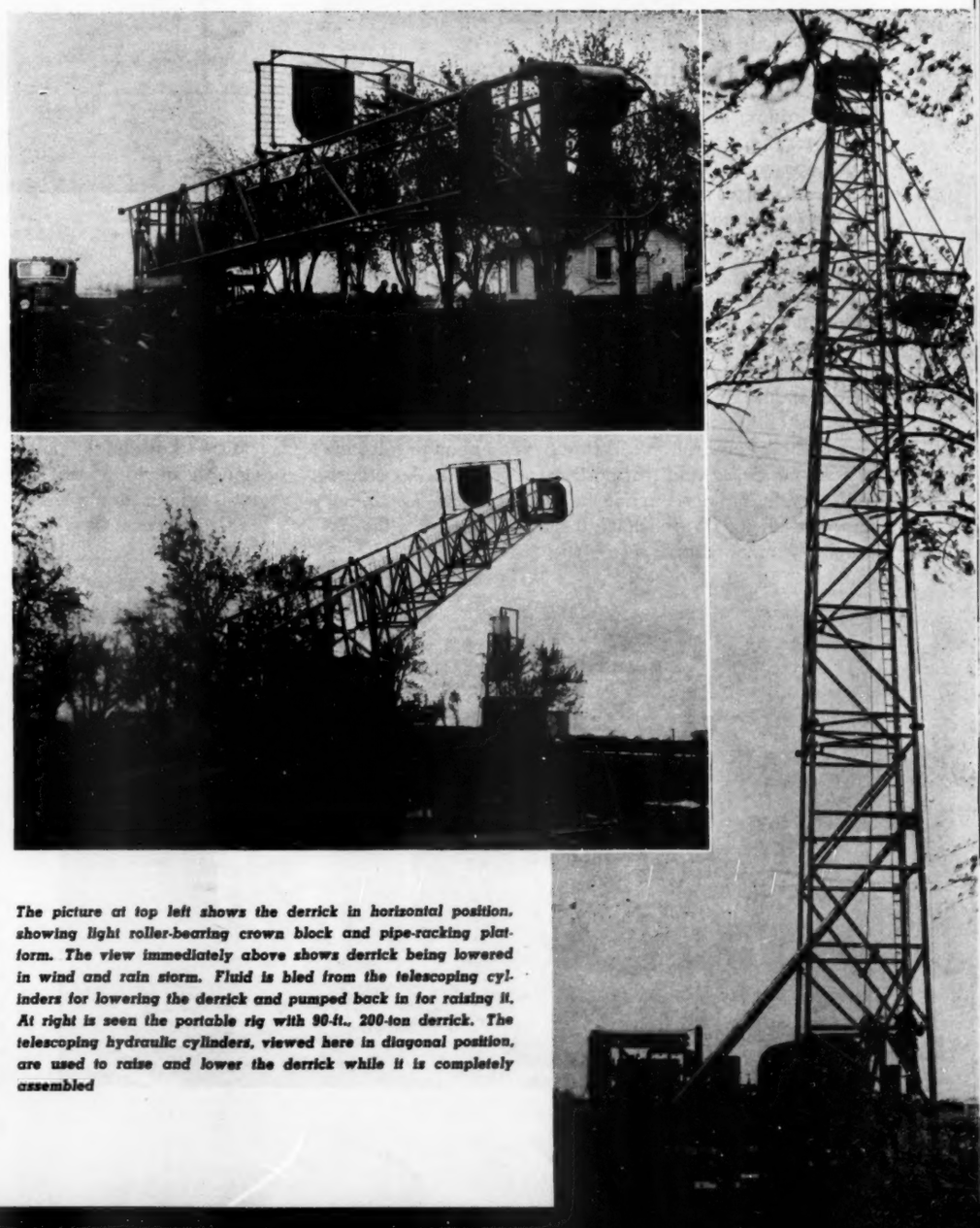
Breakout tongs can be operated by lines which are attached to hydraulic cylinders. A cathead is also available. Brake bands on the hoist drum are cooled by circulating water pumped from the tanks.

Derrick

The derrick or mast has a capacity of 200 tons and is raised and lowered by hydraulic rams. For highway travel the upper 60 ft. of the derrick can be removed and carried individually. The crown block and traveling block are equipped with Timken roller bearings.

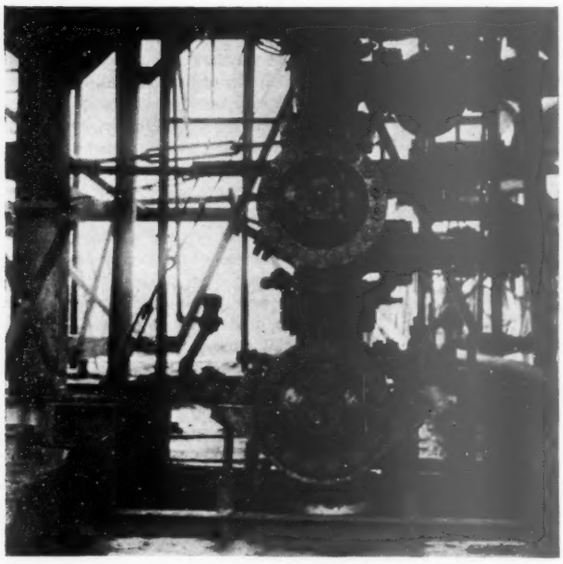
The rig is mounted on a semitrailer which uses eight large-sized tires under the rear. The trailer is drawn onto a wood or steel platform at the drilling site and the bed of the trailer is carefully leveled through the use of jackscrews which are connected to the bed at the corners and at several intermediate points. The rig is drawn by a truck with special connections when moves are necessary. The mud pump and its engine constitute a separate unit. They are mounted on skids and transported separately.

A smaller unit of the same type is now operating in the Huesseler Dome field between Mount Vernon and Evansville, Ind. It is equipped with a 55-ft. derrick and designed for 3,000-ft. drilling.



The picture at top left shows the derrick in horizontal position, showing light roller-bearing crown block and pipe-racking platform. The view immediately above shows derrick being lowered in wind and rain storm. Fluid is bled from the telescoping cylinders for lowering the derrick and pumped back in for raising it. At right is seen the portable rig with 90-ft., 200-ton derrick. The telescoping hydraulic cylinders, viewed here in diagonal position, are used to raise and lower the derrick while it is completely assembled

Operating Ideas

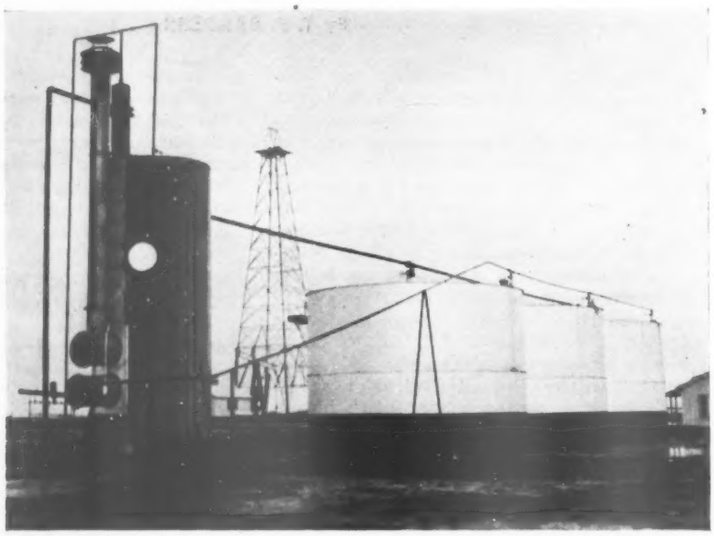


Brace for Drilling-Control Equipment

Wells drilling in many areas require considerable equipment for the prevention of blowouts in case a high-pressure gas sand is encountered. The control assembly includes a master gate, rams which fit around the drill pipe or the kelly, and a head which will permit drilling to continue while the well is actually flowing. If this assembly is not supported or braced there is considerable danger of vibration causing a fracture at some point which will later on fail when high pressures are encountered and an emergency exists. Several Gulf Coast operators are using the method shown above to eliminate this danger. Instead of depending on the braden head and the casing to support the drilling-control equipment, 10-in. I-beams are used. These are built in a U-shape, wide enough to reach across the cellar and rest on 8 by 10-in. sills. An adjustable cradle is placed under the master valve. By turning the nuts on the 1½-in. bolts, the entire weight of the assembly can be supported by the I-beams.

Conserving Vented Gas From Tank Batteries

Conservation of vented gas from tank batteries effects fuel savings in the Talco field where purchased gas must be used in crude treating. This line, connecting into the three lease tanks, furnishes enough gas at times to fire the crude heater at the left, with an auxiliary burner installed to burn purchased gas when needed.



Dummy Counterbalance

This dummy counterbalance, used on an East Texas central-power pumping unit consists of a concrete block suspended over a large horizontal pulley by a length of wide-web belting. The unit is housed in a shelter of welded rods covered with corrugated sheet iron.

Curved Connections Minimize Shock and Reduce Strain

Eliminating as many connections and abrupt changes in the high-pressure mud stream as possible, one drilling contractor makes use of curved lines in which all changes of direction are gradual. This construction not only reduces fluid friction but acts as a shock absorber to dampen vibration and to absorb any sudden pressure or volume change. Equipping each end of the curved section with a quick-opening union permits speedy assembly. It becomes evident that each curve must be made accurately to shape before installing but the additional accuracy required eliminates pipe strain.

Operating Efficiency Increased At Manvel by Standardization

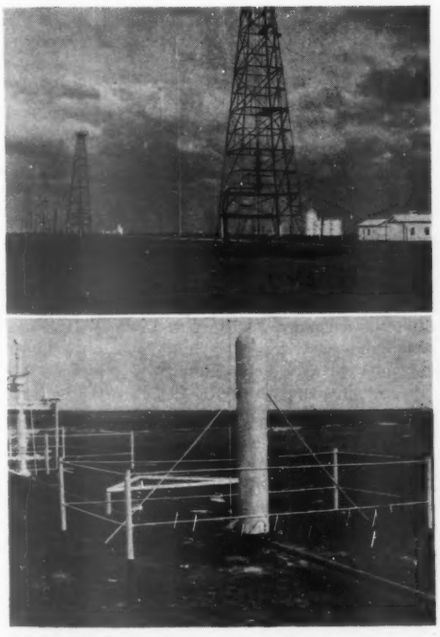
By NEIL WILLIAMS

STANDARDIZATION of all lease production equipment is being carried out by the Texas Co. in the Manvel field, Brazoria County, Texas Gulf Coast. This not only applies to completely new installations, but also as old lease facilities, such as stock-tank batteries and separator hook-ups, well connections and assemblies, and other units, need attention or replacements they are made to conform to the uniform types and designs adopted as the field has been developed.

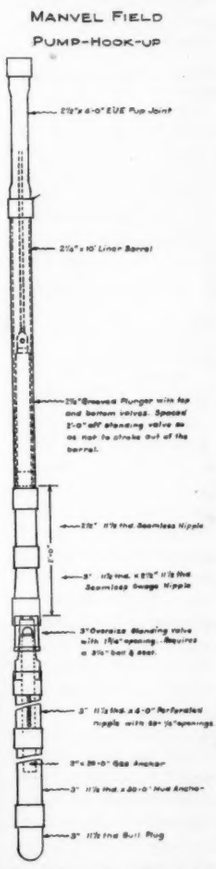
This work not only is contributing to efficient operating practices, but also is making Manvel, so far as leases of the Texas Co. are concerned, one of the most orderly appearing fields on the Gulf Coast. Through standardization it has been possible to reduce greatly the number of different items necessary to be carried in warehouse stocks. At the same time, installation as well as maintenance of the various operating units is simplified and facilitated.

Particular attention is being directed to permanence of installations with a view toward facilitating upkeep and reduction of maintenance costs. Wherever possible, materials and equipment that resist deterioration occasioned by the climatic conditions prevailing in that area are used. Facilities are designed and located to provide the maximum efficiency. Neatness and cleanliness of leases are important phases of operation.

Separators are set on solid concrete bases, which provide not only substantial foundations but add to the general appearance, and make it easier to keep the equipment clean and painted. Tank batteries are set up on mats constructed of heavy, creosoted timbers built up high enough to place the bottoms of the tanks well above the ground level. Mats are covered with a heavy tar paper, and on this is poured a thick coating of tar, in which the bottoms of the tanks are set, providing a protective seal for the tanks from the ground moisture and minimizing chances of leaking bottoms.



Upper: Row of wells on pneumatic lift in the Manvel field. At right is one of the five compressor stations in the field-wide pneumatic-lift system. Lower: Small treater unit installed on flow line of flowing well in the Brazoria County field


MANVEL FIELD
PUMP-HOOK-UP
2½"x 6'-0" EUE Pup Joint
2¼" x 10' Liner Barrel
2¾" Grooved Plunger with top and bottom valves. Spaced 2'-0" off standing valve so as not to strike out of the barrel.
2½" - 11½ thd. Seamless Nipple
3" - 11½ thd. x 2½" - 11½ thd. Seamless Swage Nipple
3" Oversize Standing valve with 1¾" opening. Requires a 3¼" bore @ seat.
3" - 11½ thd. x 4'-0" Perforated nipple with 62- ½" openings
3" x 30'-0" Gas Anchor
3" - 11½ thd. x 30'-0" Mud Anchor
3" - 11½ thd. Bull Plug

Standardized pump hook-up used by the Texas Co. at Manvel

Tank battery and separator installations of the different leases vary primarily only in number of tanks and number of well connections. Flow manifolds, both as to piping and fittings, and layout, are standardized, and their respective parts are interchangeable in the different installations, facilitating not only the initial installation but also replacements.

In each battery, provision is made for cleaning out the salt-water discharge line from the gun barrel with gas pressure. A permanent gas-line connection is made at the gun-barrel end of the discharge line, and by closing a valve between this connection and the gun-barrel outlet, the discharge line to the disposal pit can be blown out to keep it clear of any accumulation or obstruction. Gas for this purpose is conveniently available from the gas-line system serving the pneumatic pumping lifts with which most of the wells are equipped.

The salt-water and basic-sediment outlet line from the gun barrel is in the form of a goose neck which empties over the top into the open end of a riser from the discharge line extending up the outside of the gun barrel to the desired fluid level. This eliminates the chance of any backing up of fluid into the gun barrel that might cause the gun barrel to overflow, and which in turn assists the operators in keeping gun barrel and tanks clean.

The program calls for the use of galvanized foundation and tank bolts. Replacements with these are being made as rapidly as the old bolts have to be discarded. Use of galvanized materials also applies to various other equipment about the field such as guy lines, turnbuckles, etc. Adoption of the use of galvanized materials is expected to reduce greatly necessary future replacements occasioned by corrosion.

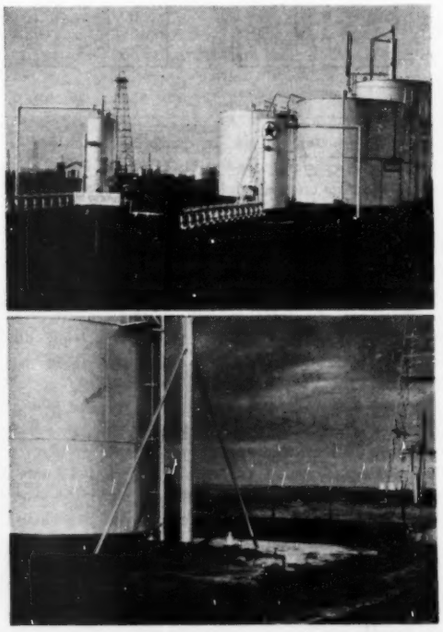
Wooden tubing boards in the production derricks also are being replaced with galvanized metal boards. Due to the humidity at Manvel, the wooden boards have decayed rapidly and have to be replaced often. It is expected the steel boards will prove more economical in the long run, besides being neater and safer.

Concrete floors are being laid around all pumping wells. Most of these wells are equipped with Sullivan pneumatic lift (The Oil and Gas Journal, April 16, 1936, Page 114). In the gas system for the pneumatic-lift operation, the company now has five compressor stations at key places over the field. A few outlying wells not immediately convenient to the gas system still are being pumped by other means.

In low parts of the field the company is raising concrete bases high enough to keep operating equipment above any high-water level. In earlier development of the field some of the engines and other equipment were set so low that shutdowns sometimes were necessary due to high water.

The company has adopted the practice of injecting emulsion-treating chemicals into the flow line at each well instead of in the gun barrel. For this a small gas-turbine driven pump, which

(Continued on Page 64)



Upper: Standardized tank battery and separator installation used by the company. Lower: Salt-water cleanout on the gun-barrel discharge line

Subsurface Pump Performance

By S. B. SARGENT
Sargent Engineering Corp., Huntington Park, Calif.

A.P.I.—There are a great number of factors influencing subsurface-pump operation that cannot be readily determined without the use of instruments to measure their relative magnitudes. Here use of special instruments, and performance curves obtained, as a means of increasing pump efficiency are discussed. The paper was read by Lou West of the engineering company at a meeting of the Illinois basin chapter of the American Petroleum Institute in Evansville, Ind., June 29.

THE performance of sucker-rod-operated pumps is dependent upon a number of factors. Some of which are intimately related to design of the pump, some to pump operation, and some to the fluid and well characteristics. The use of special instruments developed to record fluid levels and fluid pressures, rod loads, length of plunger strokes, and pump efficiencies have proven very beneficial to well operators and to others interested in pump installation and production. The operation of model pump installations and equipment for testing actual pumps and parts has also contributed much to the general knowledge of their requirements and performance.

The general type of performance curve obtained with special pump test installations, and also from the recordings of the bottom-hole dynagraph on actual installations in wells is as shown in Fig. 1. Data for the curves is obtained by operating the

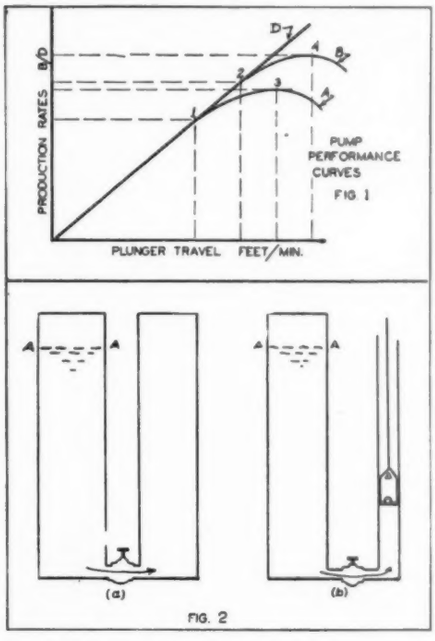


Fig. 1 (top)—General type of performance curves obtained with special pump-test installations. Fig. 2 (bottom)—Diagram offering explanation for the occurrence of performance curves

pump at different speeds while maintaining the well fluid at a fairly constant level. The production rates and plunger travel are recorded for each speed of operation. The curves result from plotting production rates in barrels per day against average plunger velocity in feet per minute. The reason plunger velocity in feet per minute is preferred to strokes per minute is that plunger displacement varies with the two variables, operating speed and length of stroke, but with the single variable, plunger velocity.

The plunger velocities used are calculated from the measured plunger stroke and the operating speed. Thus, a 4-ft. stroke at 20 s.p.m. gives an average upward plunger travel of 80 ft. per minute. Line *D* represents the actual volumetric displacement of the plunger for different rates of travel.

Curves *A* and *B* represent fluid production rates pumped at the various operating speeds. The difference in production rates shown by the two curves is due to the two different heads held on the pump while the tests were being run. At the slower pumping speeds it is seen that the fluid production rates are equal to the plunger displacement, that 100 per cent fluid efficiency is realized. As the pumping speed increases the production rates increase in direct proportion until some point as 1 or 2 is reached. Further increases in pumping speeds still produces an increase in production until some point as 3 and 4 are reached. Any increase in speed beyond these points will result in a decrease of fluid production.

An explanation for the occurrence of such performance curves can perhaps be simplified by the diagram of Fig. 2*a*. Consider two vertical tanks connected together with a gate valve near their bottoms, and one tank filled with water to level *AA*. If the valve is now opened the water will flow into the empty tank with a velocity that is proportional to the difference in pressure at the two ends of the connecting valve or proportional to the difference in elevation of the fluid levels. Immediately, after the valve is opened the fluid will flow with its maximum velocity, which will gradually decrease as the fluid level rises. When the two fluid levels become even, the flow will stop. The pressure at the outlet and inlet of the two tanks have become equal.

Suppose one of the tanks is replaced with a pump as shown in Fig. 2*b* and the fluid level in the tank always maintained at *AA*. As the plunger moves upward a suction effect or pressure reduction is created in the pump chamber which causes fluid to flow into it from the tank. If the plunger is moved slowly upwards and downwards with a pumping motion, the fluid completely fills the chamber during each stroke, giving the pump a fluid displacement equal to the plunger displacement. Increasing the velocity of the plunger by increasing the number of strokes per minute will likewise increase the fluid rate in direct proportion. There will be a plunger speed reached, however, at which the incoming fluid can no longer keep up to the plunger, simply because the difference in pressure at the two ends of the connecting valve is not great enough to force fluid through it with sufficient velocity. At this pumping speed point *L* of curve *A* in Fig. 1 has been reached. The plunger has begun to "pound fluid." Fluid production is no longer 100 per cent of the plunger displacement. At some higher operating speed, point 3 of curve *A* will be reached which will give maximum fluid production.

The question might arise as to why the plunger does not "suck" the fluid into the pump chamber and maintain 100 per cent fluid production. At the beginning of the upward stroke of the plunger, all the fluid is stationary and requires acceleration to give it a velocity equal to that of the plunger. The force to do this accelerating must come from the combination of fluid pressure outside the pump and the reduction of pressure inside the pump chamber. The pressure differential thus created must also serve to overcome all resistance developed by the fluid as it flows through the entrance ports and standing valve on its way into the pump chamber. The amount the pressure can be reduced on the fluid inside the chamber is dependent upon the volatility or vapor pressure of the fluid. With cold water it can be reduced approximately 14½ lb. per sq. in. With crudes it may vary from that of water to practically nothing. Therefore, the forces available for accelerating the incoming fluid to velocities sufficient to follow the plunger, and to overcome frictional resistance of the fluid, are definitely limited. Since nothing can be done to control the vapor pressure of the fluid the only other alternatives to

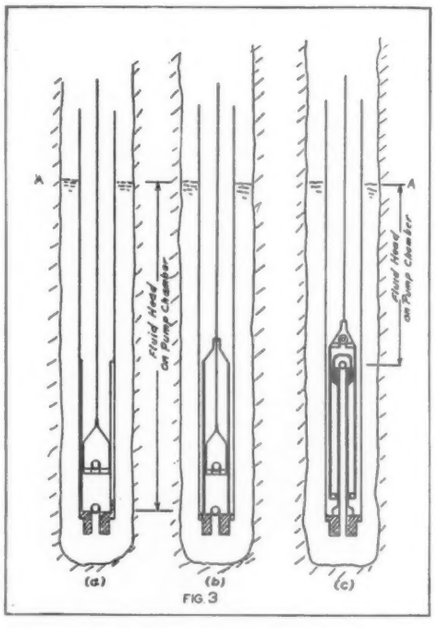


Fig. 3—Chart illustrating how the design of three basic pumps conform to the requirements for maximum fluid production: (a) tubing pump; (b) traveling-plunger insert pump; (c) traveling-barrel insert pump

insure the best performance are to secure as much fluid submergence on the pump chamber as possible, and to reduce the fluid resistance of all entrance ports to a minimum.

Fig. 3 illustrates how the design of three basic pumps conform to the requirements for maximum fluid production. The tubing pump (*a*) and the traveling-plunger insert pump (*b*) take equal advantage of the available well fluid head. The traveling-barrel insert pump (*c*) cannot take as full advantage of the fluid head as either of the other two and in addition offers greater resistance to the fluid coming into the pump chamber because of the long slender pull tube and the small standing valve.

There are times when the relative advantages which one type may have over another are not of sufficient importance to warrant consideration. If a well has a high operating fluid level and no attempt is made to operate either the pump or the well at rates approaching its maxi-

mum, either style of pump, if of the same plunger displacement, should handle the same production. If, however, an attempt is made to produce the well at rates approaching its maximum the fluid level will normally be low, and the pump with the latest intake resistance, and the greatest fluid head above the pump chamber, will be capable of handling the most fluid. In the case of stripper wells the fluid levels and production rates both are very low. Submergence of the pump chamber is of greater importance. If fluids of high gas-oil ratio or fluids containing free gas are being handled, low intake resistance is highly desired.

Performance curves of traveling-plunger pumps and traveling-barrel pumps when handling a very low gas-oil ratio fluid under the same operating conditions, are given in "The Report on A.P.I. Pump-Performance Experiment" by E. K. Parks and M. G. Arthur, which was read at the Chicago meeting, November 18, 1938.

Typical Pump Dynagraph Data

The Gilbert Sargent pump dynagraph records the plunger load stroke relationship for each stroke of the plunger. The corresponding parts of a dynagraph card and plunger operation are shown in Fig. 4. In (*a*) of Fig. 4 is shown a card corresponding to 100 per cent fluid capacity.

Line *DA* represents the plunger fluid load and is caused by the rods in the instrument stretching during the time the fluid load is being transferred from the standing valves to the traveling valves. At point *A* the rods in the instrument as well as the sucker rods have been stressed sufficiently to carry the fluid load, and the plunger is free to move upwards. The standing valve now opens. Line *AB* is proportional to the total plunger stroke. At point *B* the plunger has reached the top of its stroke. The fluid has followed the plunger on its upward stroke and has filled the pump chamber. The standing valve now closes.

Line *BC* represents unstressing the rods in the instrument as the sucker rods start their downward stroke. It is the reverse of line *DA*. At *C* the fluid load has been transferred to the standing valves. The plunger valves open, and the plunger is free to travel downward. Line *CD* is drawn while the plunger is traveling down and is equal to line *AB*. At *D* the plunger valve closes.

In Fig. 4*b* is shown a card drawn while a pump is operating at something less than 100 per cent fluid capacity. Again line *DA* and *AB* are made as in the previous case. At point *B* the plunger is at the top of its stroke, and the standing valve closes. The plunger, however, reached the top of the stroke too quickly for the fluid to follow it. The fluid is at some point *F* and is still coming up. The plunger starts down with the fluid load still on it, and meets the incoming fluid at *G*. Stopping momentarily while the fluid load is transferred from the plunger to the standing valves. Line *GC* is drawn during the transfer of fluid load. At *C* the fluid load has been transferred, and the plunger valve opens allowing the plunger to complete its downward stroke. Line *CD* represents the effective fluid stroke of the pump.

The pump is "pounding fluid" and is operating with a fluid capacity equal to lines *CD*/*AB*. If the plunger were traveling with sufficient speed the pump card would appear as in Fig. 4*c*. The shock of the plunger hitting the fluid is indicated by the jagged load line. Operation such as indicated here should be avoided by going to a slower operating speed or to a smaller plunger. The shock loading created by severe "fluid pounds" is often responsible for rod failures and pump damage. The effects of "fluid pounds" are generally most severe when it occurs somewhere between 30 and 70 per cent of the plunger stroke, because in that range the plunger is traveling at its maximum rate of speed.

Gas Cards

Fig. 5 shows the elements of a pump dynagraph card that is made during the time that gas is being handled. At the completion of the down stroke of the plunger there is left in the pump chamber some gas and liquid which is still under high pressure. As the rods move upward to assume the plunger fluid load, the trapped high-pressure gas helps to lift the plunger and expand until its pressure drops to that of the fluid outside the pump chamber. The curved line *DA* is traced during this gas expansion part of the cycle. With the pressure above the standing valve reduced to that of the fluid outside the pump the standing valve opens and allows the mixture of fluid and gas to enter the pump chamber as the plunger travels upward to point *B*. At point *B* the pump chamber is filled partly with fluid and partly with gas that is at the low pressure of the fluid in the well. The standing valve closes and the plunger starts downward compressing the gas in the pump chamber until its pressure is raised to that of the fluid above the traveling valve. As the gas is compressed it is able to relieve the rods of the fluid load in a manner corresponding to the curved line *BC*. At point *C* the original gas has been reduced in volume and correspondingly raised in pressure sufficiently to open the plunger valve. The plunger then completes its downward stroke from *C* to *D* with the plunger valve open.

For illustrative purposes the gas and fluid volumes are shown as separated. It is believed, however, that in the pump the gas is in the form of bubbles throughout the fluid.

The plunger stroke is again represented by the total length of the card. The effective fluid stroke is from *A* to some place short of *C*, and can be calculated very accurately if the well pressure at the pump is known. The space left between the plunger valves and the standing valve, called the "clearance volume," is important when a pump is handling gaseous fluids. It is responsible for some loss in the effective fluid stroke of the plunger, and is effective in lowering the compression ratio of the pump and promoting gas lock. It is seen from the diagram that gas remaining in this space after the completion of the downward stroke of the plunger has to be expanded from its original volume to a volume that is greater by the ratio "tubing fluid pressure" to "well fluid pressure" before the standing valve can open. It is also seen that a gas volume in the pump at the beginning of the downward stroke of the plunger must be reduced by the ratio "well fluid pressure" to "tubing fluid pressure" to its original volume before the plunger valve can open.

The importance of pump-compression ratio and the ratio of tubing-fluid pressure to well-fluid pressure is too often overlooked when making installations in gaseous wells. Suppose a pump were installed in a gaseous well and operated so that the plunger had a total stroke of 30 in., and spaced so that it came within 6 in. of the standing valve at the bottom of its stroke. The operating compression ratio of the pump would be $30+6/6 = 6$. If the pump were set at 2,000 ft. the tubing fluid pressure at the pump would be (assuming 35-lb. fluid) $2{,}000 \times .35 = 700$ lb. per sq. in. Unless the gas is given ample chance to get out between the casing and the tubing the pump can gas-lock when the well-fluid pressure at the pump is reduced to $700/6 = 116$ lb. per sq. in. approximately.

Operating pump-compression ratios as low as 6 are not at all unusual. They have been found many times to be as low as 2. After a pump has gas-locked it may be freed either by fluid leaking past the plunger into the pump chamber or by the fluid level in the well building up until its pressure can force more fluid into the pump.

Conclusion

There are a great number of factors influencing pump operation that cannot be readily determined without the use of instruments to measure their relative magnitudes. Each factor taken by itself is quite simple and is easily explained by fundamental laws of either hydraulics or mechanics.

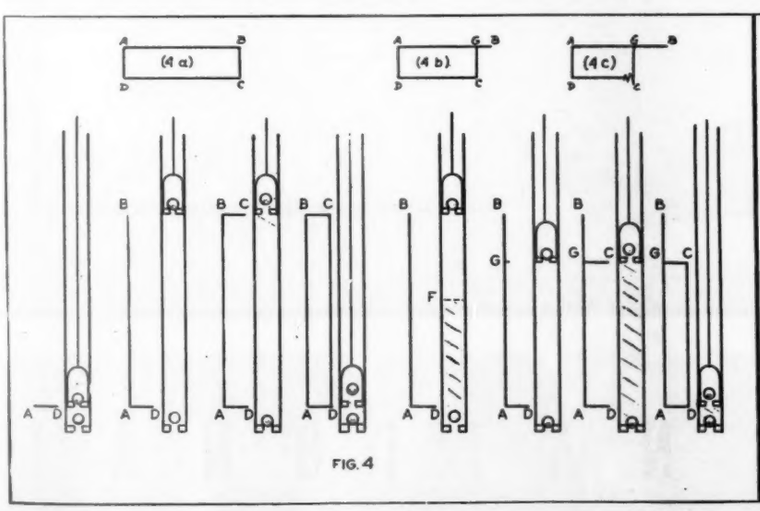


FIG. 4

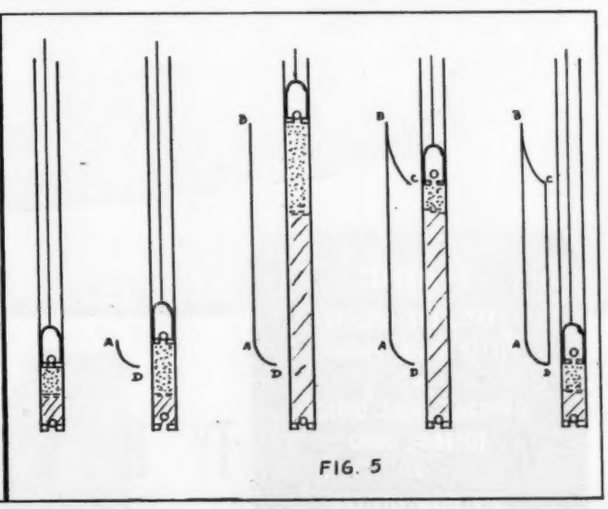
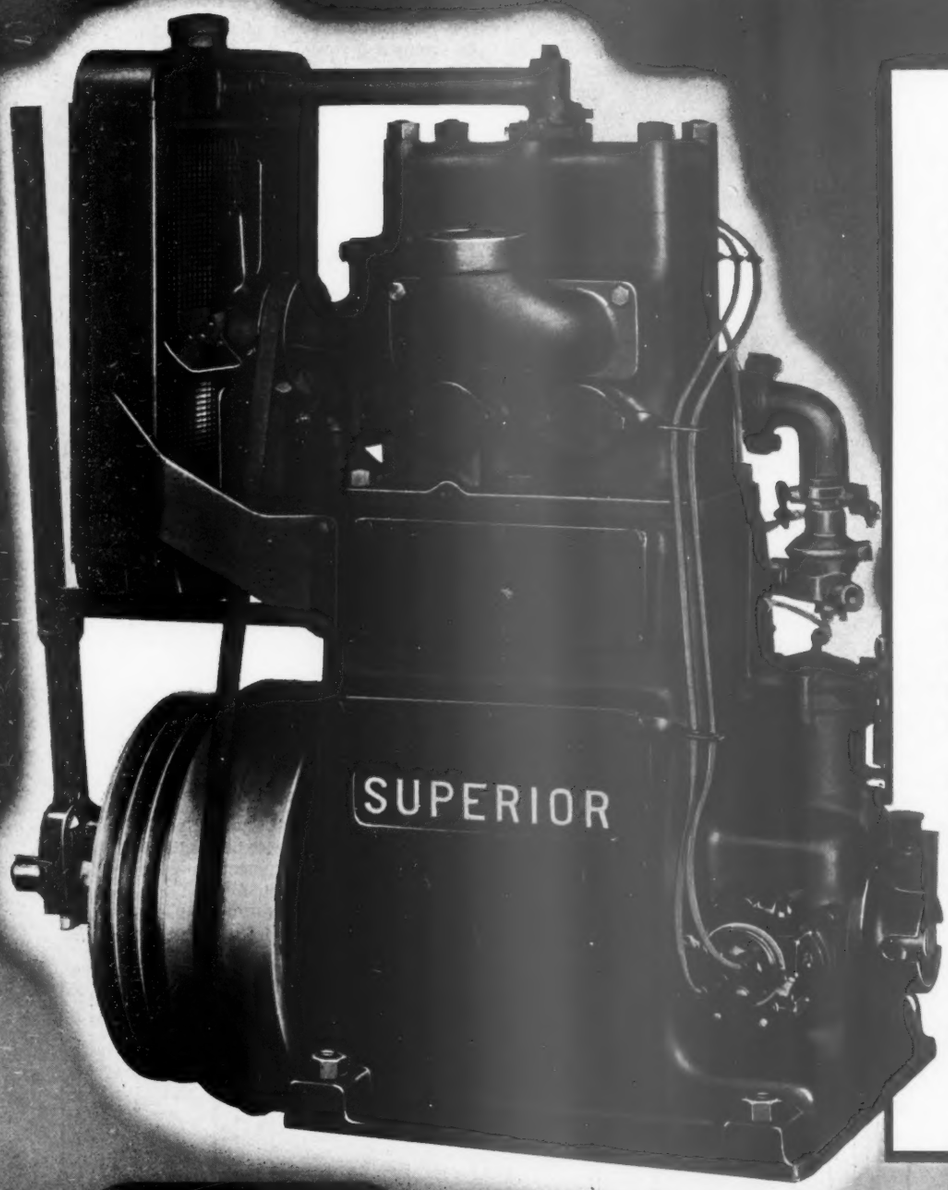


FIG. 5

Fig. 4 (left)—Corresponding parts of dynagraph card and plunger operation. Fig. 5 (right)—Elements of a pump dynagraph card made during the time gas is being handled

Superior TYPE "DVA" TWIN 4" x 5"



THIS rugged, medium speed, 2-cycle gas engine operates with little attention. The design is simple and fully understood by the pumper who easily keeps engine in running order. Troubles, shut-downs and expense are minimized.

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Moderate rotative speed, heavy crankshaft and roller main bearings conducive to long life and avoidance of replacements.

Crossheads lessen wear on cylinders, also permit sealing off crankcase from hot pistons, to prevent contamination and pumping of oil, thus reducing lubrication expense.

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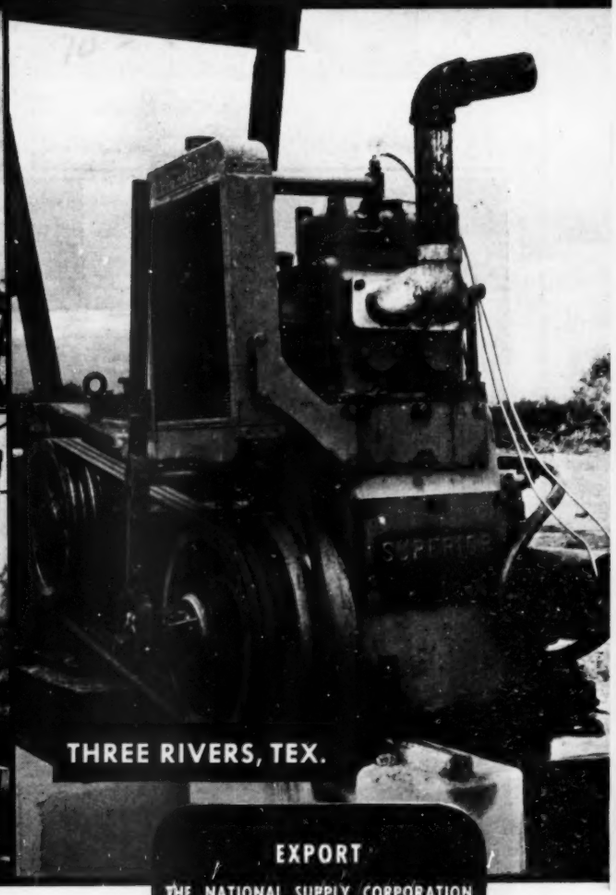

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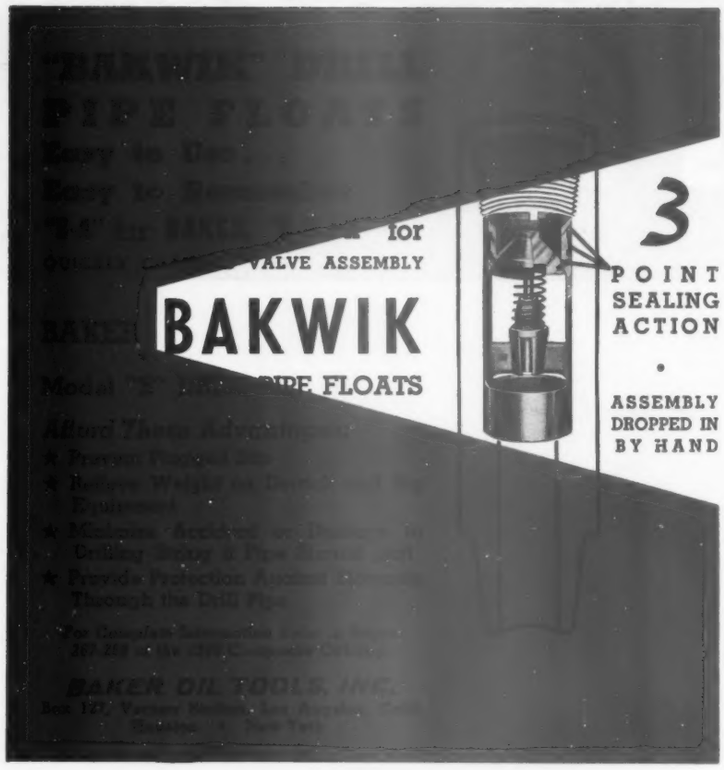

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Operating Efficiency Increased at Manvel by Standardization

(Continued from Page 57)

injects a controlled volume of chemical into the line, is installed at each flowing well. Gas for operation of the turbine is taken from a small improvised separator set on the line for this purpose. By this practice the mixing and treating action of the chemical takes place entirely in the line from the well to gun barrel so that within the gun barrel there is no occasion for turbulence, thus permitting more effective use of the gun barrel as a settling tank.

Protection of equipment both from accidental damage and from deterioration from the elements is a main consideration in the field. Substantial guard fences built of old pipe and rods are placed around all flowing wells and other operating equipment where there is danger of damage. All equipment and facilities are kept adequately painted and clean, adding to the attractiveness and orderliness of the leases.

Corrosion of flow lines from wells to lease batteries has been studied with a view to providing better protection for these lines or replacing with pipe of corrosion-resisting materials. Tests are being made with various types of pipe to determine corrosion effects.

Standardization in the field has been carried to the subsurface pump hookup. This assembly from the bottom of the tubing down consists of a 4-ft. by 2½-in. pup joint, a 10-ft. by 2½-in. liner barrel, a 2-ft. section made up of a 2½-in. 11½-thread seamless nipple with a 2½-in. by 3-in. seamless swaged nipple, a 4-ft. by 3-in., 11½-thread perforated nipple having 60 openings ¼-in. in diameter. This is made up with a 3-in. oversize standing valve with a $1\frac{5}{16}$-in. opening requiring a 3¼-in. ball and seat. A 20-ft. by 2-in. gas anchor and a 30-ft. by 3-in. mud anchor with a bull plug is placed on the bottom of the assembly. A 2½-in. grooved plunger having top and bottom valves is spaced in the liner barrel as close as possible to the standing valve (often less than 1 ft.) so as to avoid gas lock.

It is possible to do this because the slow stroke of the pneumatic lifts eliminates overstroking to a large extent. The use of the 2-ft. nipple between the barrel and the standing valve is to allow the plunger to work as low as possible in the barrel and thus to prevent the plunger from stroking out of the top of the barrel.

The Texas Co. owns all except a few small leases in the field, which was opened in September 1931.

BOOKS

BARKLEY'S PETROLEUM DIRECTORY. By J. J. Barkley, 258 pp.; price $10.

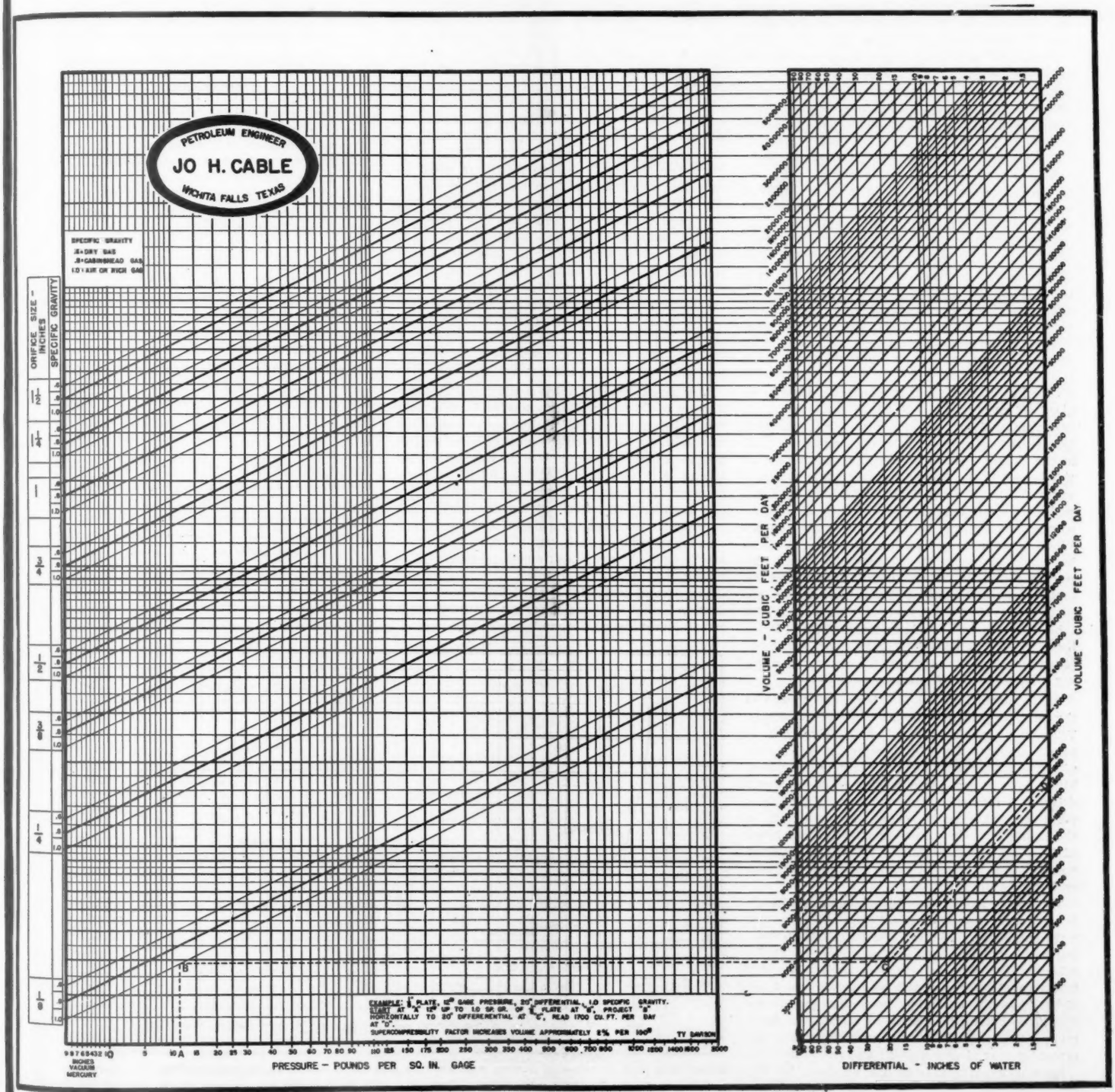
The 1940 edition of this directory has been enlarged to cover the states of Texas, Louisiana, New Mexico, Mississippi, Alabama, Florida, Oklahoma, and southern Arkansas. The listings have been broken down into key centers and divided into two sections: (1) Oil and royalty companies, drilling contractors, engineers, and geologists, and (2) oil-field supply and specialties companies. An alphabetical listing is made at the back of the directory to facilitate location of names in their respective sections. The publisher's years of experience in directory compilation have gained for him wide recognition in this field.

Chart for Computing Volumes

IN computing the volume of gas being injected into input wells in pressure maintenance and repressuring operations or gas produced at the casing head to obtain gas-oil ratios, as well as many other uses, usually operators make use of extension tables or apply arithmetical formula. To do so requires considerable time, and in many instances the tables are not available in the field or the personnel thoroughly familiar with their use. Thus in order that the gas volumes might be more easily computed, "Ty" Davison, engineer for Jo Cable, repressuring engineer of Wichita Falls, Tex., devised the chart shown here.

The chart is the result of many calculations made for the various-size orifices, using gases of different densities and over a wide range of pressures and pressure differentials. It was calculated for flange connections, but may be used for 2½ by 8-in. connections within certain limits. Experience has shown that the chart, when shown on the scale used here, can be read with an accuracy of about 5 per cent. On a considerably larger scale, though, the chart can be read within an accuracy of less than 2 per cent, or practically within the error of the usual orifice meter. On the left-hand side are plotted orifice sizes ranging from ⅛ to 1½ in. and gases of 0.6, 0.8 and 1 sp. gr. On the two horizontal scales are plotted gage pressure and differential pressure, and on the right-hand scale is read the volume of gas in cubic feet per day.

Following is an example of the chart's application: Orifice size, ⅛ in.; gage pressure, 12 lb; pressure differential, 20 in. of water; specific gravity of gas, 1. Starting at 12 lb. on the pressure abscissa (*A*) a vertical is extended to the inclined line of 1 sp. gr. and ⅛-in. orifice point (*B*); from this point a horizontal is extended into the right-hand chart until it intersects the abscissa of 20 in. of water (*C*); by extending a line upward parallel to the inclined lines the volume of gas, in cubic feet per day, is read at point *D*. Volumes ranging from 300 to 5,000,000 cu. ft. per day may be computed.


PETROLEUM ENGINEER
JO H. CABLE
WICHITA FALLS TEXAS
SPECIFIC GRAVITY
.6=DRY GAS
.8=CASINGHEAD GAS
1.0=AIR OR RICH GAS
ORIFICE SIZE - INCHES
SPECIFIC GRAVITY
INCHES VACUUM MERCURY
PRESSURE - POUNDS PER SQ. IN. GAGE
VOLUME - CUBIC FEET PER DAY
DIFFERENTIAL - INCHES OF WATER
VOLUME - CUBIC FEET PER DAY
EXAMPLE: ⅛" PLATE, 12# GAGE PRESSURE, 20" DIFFERENTIAL, 1.0 SPECIFIC GRAVITY.
START AT "A" 12# UP TO 1.0 SP. GR. OF ⅛" PLATE AT "B", PROJECT "C" HORIZONTALLY TO 20" DIFFEREMENTIAL AT "C", READ 1700 CU. FT. PER DAY AT "D".
SUPERCOMPRESSIBILITY FACTOR INCREASES VOLUME APPROXIMATELY 5% PER 100#
TY DAVISON

SUGGESTED FIELD PRACTICES —No. 4— — Low Producing Rates Waste Reservoir Pressure

By T. P. SANDERS

TOO often it is assumed that the best way to operate a flowing well is to restrict its flow to a point where 24 hours will be required to produce the daily allowable. This practice is usually carried on in the name of conservation, but actual field evidence indicates that a low rate of flow can be, and usually is, even more wasteful of reservoir pressure than is wide-open flow. While open flow is not to be recommended, it is preferable in some respects over too-severe restriction, which tends to bleed off an abnormally high proportion of gas, leaving "dead" oil in the reservoir.

Flowing rates need not be governed by daily allowable production. If the flowing rate is found that will give the lowest gas-oil ratio, the well can be produced at this optimum rate for the required time each day to give the daily allowable. Such intermittent operation is beneficial in that channels, which tend to form around the well bore under steady operation, are invaded by oil from the tighter sands during shut-in periods. This effect has been very noticeable in intermittent operation of gas-drive leases, and the fact that flowing wells produce with a lower gas-oil ratio after a shut-in period shows that the same holds true in their case.

Given sufficient time, it would be possible to bleed off nearly all the dissolved gas from an oil reservoir without producing any oil, provided that sufficiently small choke openings were used at the tubing head. An every day equivalent of this is seen in the case of a ginger ale or charged-water bottle. A small leak in the cap or valve will permit all the dissolved carbon dioxide to escape, leaving the bottle full of lifeless fluid. When large-capacity flowing wells are pinched back so that they will produce only 5 or 6 bbl. per hour through 2½-in. tubing, then the above most wasteful condition is being closely approached. Velocity of flow is so low that the tubing acts as an oil-and-gas separator, and if we listen at the well head we may hear occasional "slugs" of oil passing through the choke, punctuating long intervals of gas escape.

Oil is moved into the well bore, and thence to the surface, primarily because of gas expansion. True, many pools have a water drive, but in nearly all cases the drive becomes effective only after the gas pressure has been largely dissipated. Then, without gas, the expulsion of oil by water drive is sooner or later accompanied by the expense of lifting water. Since expanding gas is the lifting force in a flowing well, the efficiency of flow can be gaged simply by determining the volume of gas released from the reservoir with each barrel of oil produced.

The chart shows the typical relationship between gas-oil ratio and rate of flow. All data used were obtained by accurate test on a 4,200-ft. flowing well equipped with a full string of 2½-in. tubing and an adjustable surface choke. The well had a small allowable, 120 bbl. per day, and the object was to determine how this production should be obtained in order to release the minimum volume of formation gas. Gas from the separator was measured with an orifice meter.

Several important facts are revealed by the chart. Open flow through the 2½-in. tubing, while not so wasteful of gas as the low rates of flow, required 50 per cent more gas per barrel of oil than was necessary at the most economical rate. It is believed that at this rate of flow the reduction in pressure at the bottom of the well was sufficient to promote liberation of gas from the oil in the surrounding sand, thus accounting for the large gas production. Credence was given to this hypothesis by the observation that the gas production increased steadily as the flow continued.

When flow was restricted by a ⅞-in. choke, the gas-oil ratio was reduced 17 per cent. Tests for the ¾-in. and ½-in. openings have not been included on the curve because they were made immediately following the ⅞-in. test, and they reflect the well's tendency to increase its gas-oil ratio as flow continues uninterrupted. This tendency toward increase of gas production appears to be a general characteristic of all flowing wells, and it discloses the desirability of giving the wells a daily rest period during which time the pressures about the bottoms of the wells can equalize.

The tests at the extreme left-half side of the chart show that the gas-oil ratio increased enormously when the well was pinched in to produce less than 25 bbl. per hour.

It is sometimes contended that intermittent production of flowing wells is undesirable, two arguments being advanced for this contention. First complaint is that during the shutdown periods gas is allowed to accumulate at the top of the tubing, and this must be discharged as waste before flow of oil is started. Gas discharged in this manner was measured and included when making the accompanying chart, and its volume was found to be inconsequential. Also, its volume was calculated from pressure measurements in the tubing with the same result.

The second complaint against intermittent production is that it promotes caving of the oil sands and intervening shales and tends to bring in water. However, for gas-oil ratio control the flow rate need not exceed 30 bbl. per hour when 2½-in. tubing is used, and it is doubted that such a rate will injure any producing sand.

The chart represents data on a single well. Other wells would exhibit different reservoir conditions, and would therefore show differing curves. However, all gas-oil ratio curves have one thing in common, and that is the sharp rise for the low rates of flow. For in this portion of the curve conditions in the flow string become the controlling factor while reservoir conditions become a minor consideration.

Most flowing wells are equipped with 2½-in. tubing because this size is most likely to be wanted when pumping or gas lift is inaugurated. Smaller tubing is known to be advantageous in flowing wells of low allowable, but it is usually considered uneconomical to install a flow string that will have to be replaced when flow ceases.

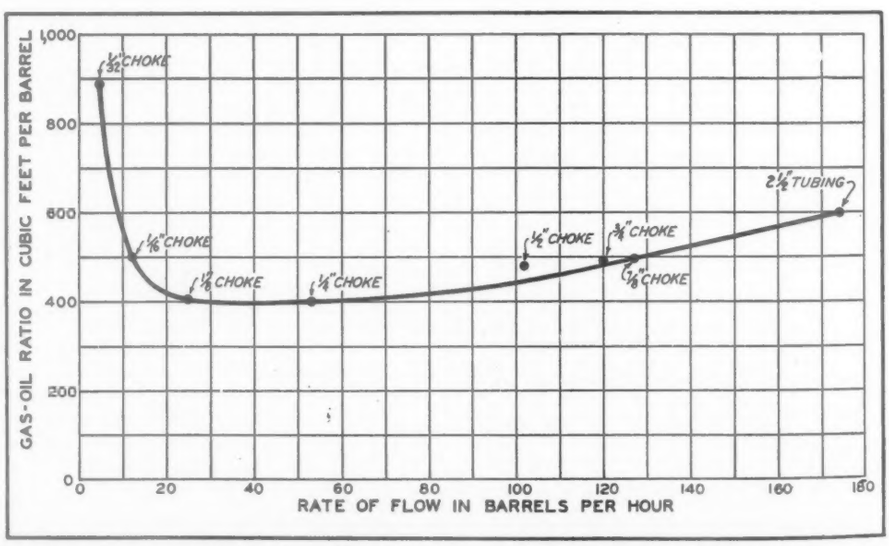
Conclusions

The flow of oil and gas in reservoirs and tubing is a complicated study. Yet, if a few simple facts are given due consideration, flowing wells can be operated efficiently without evaluation of the complicated and controversial aspects of flow.

The most wasteful condition likely to arise in a flowing well is the dissipation of gas pressure due to a low flow rate. Wells with small allowables that are pinched in to produce for 24 hours per day almost invariably suffer from extreme separation of oil and gas in the tubing. Correction of this condition can be brought about simply by adopting faster flow rates and shutting the wells in for the remainder of the day after the allowables have been made.

For determining the best rate of flow for a given well, there is no substitute for gas-oil ratio tests. When it is found impossible to make gas-oil ratio tests, the most wasteful rates of flow can be avoided simply by applying information obtained from other wells. It is true that the optimum rate of flow will vary from well to well because of depth, oil viscosity, and quantity of solution gas. However, since tubing size is the most important factor, the use of test data from another well, or even from a different field, will be far better than the use of no test data at all.

For wells that use 2-in. tubing, material assembled shows that wasteful conditions usually occur when the rate of flow is restricted below 10 bbl. per hour.



Gas-oil ratio tests on a typical flowing well, showing that gas is wasted at low rates of flow. The sharp rise in gas-oil ratio for the low flow rates is often obscured in tests by improper measurement of the reduced gas flow

Progress in METALS

By W. L. NELSON

Specifications for Oxyacetylene Welding of Carbon-Molybdenum Steel Pressure Pipe Line

THE following specifications were quoted from "Oxyacetylene Welding of Carbon-Molybdeum Steel Pipe, Part 2—Field Testing and Application," by A. N. Kugler, of the Air Reduction Sales Co., and presented before the International Acetylene Association fortieth annual convention, April 10-12, Milwaukee, Wis.:

Base material. — The base metal shall conform to American Society for Testing Materials specification serial designation A206-38T.

Process. — The welding shall be performed by the oxyacetylene process.

Filler metal.—The filler metal shall be carbon-molybdenum oxyacetylene welding rod.

Welding groove.—The welding groove shall conform to details as shown in Drawing 1. The same welding groove shall be used for vertical and horizontal pipe welds. When it becomes necessary to bevel pipe in the field, machine-guided oxyacetylene torches shall be used. It shall not be necessary to provide a land or shoulder on these joints.

Cleaning of welding groove.—Prior to welding, the edges of the pipes and the surfaces adjacent thereto shall be thoroughly cleaned of all scale, rust, grease, or oil. A thin film of linseed oil will be permitted for the preservation of machine-tool beveled surfaces.

Welding equipment.—Welding torches of an approved type shall be used. Sizes of welding tips to be employed shall be as shown in Schedule 1.

Nature of the flame.—The flame used for welding shall be neutral, ranging to a slight excess of acetylene.

Method of welding.—The method of welding shall be "forehand" or "backhand" as the position of work indicates most expedient.

Definitions. — Forehand welding is that method of welding in which the torch flame and welding rod are so disposed that the flame points ahead in the direction of welding and the rod precedes the flame. Backhand welding is that method of welding in which the torch flame and welding rod are so disposed that the flame points back at the completed weld and envelopes the molten puddle, and the rod is interposed between flame and puddle.

The number of layers of weld metal shall be as shown in Drawing 2.

The size of welding rods to be used shall be substantially as indicated in Drawing 2.

For horizontal pipe rolling welds and for vertical pipe position welds, each layer shall be deposited in a continuous circuit of the pipe. When vertical pipe position welds are in difficult positions the method of deposition of layers may be varied but shall conform substantially to that given below for horizontal pipe position welds.

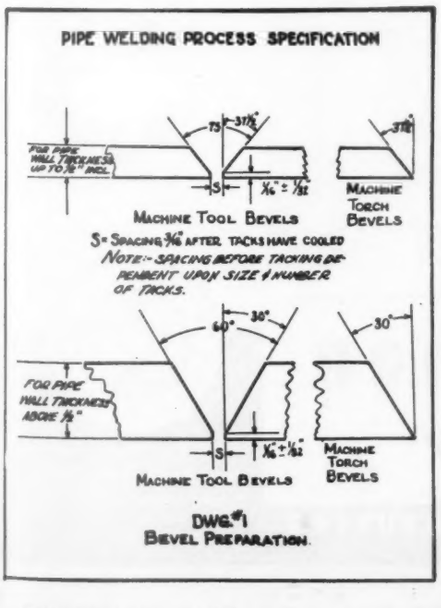
For horizontal pipe position welds each layer shall be started at the center line and progress downward to the bottom center line. It shall then be restarted (exercising proper precautions to insure fusion at this point) at the top center line and progress downward, on opposite side, to bottom center line where it meets and is fused with previous deposit.

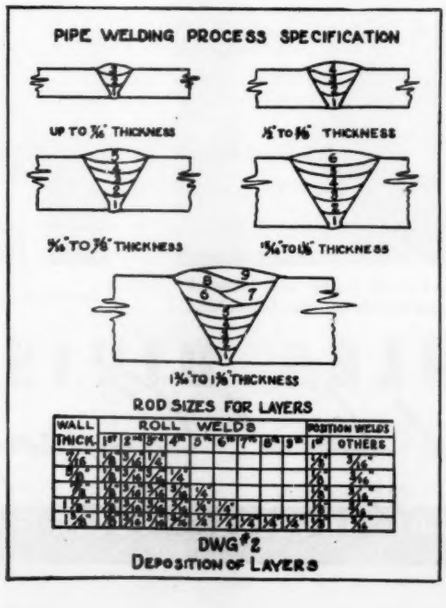
Cleaning of weld.—Each layer shall be wire brushed for removal of loose scale before laying down next successive layer of welding.

SCHEDULE 1—SIZE OF WELDING TIPS

Pipe wall thickness (in.)	Use tips consuming following volume of acetylene, cu. ft. per hr., approx.
¼ - ¼	12-36
⅜ - ½	36-60
⅝ - ⅞	30-100
⅞ -1⅛	50-175
1⅛-2	65-175

Note: In generate, larger tips of a range (greater acetylene flows) will be used for rolling welds while smaller tips (lesser acetylene flows) will be used for position welds.


PIPE WELDING PROCESS SPECIFICATION
FOR PIPE WALL THICKNESS UP TO ⅜" INCL.
MACHINE TOOL BEVELS
MACHINE TORCH BEVELS
S= SPACING 1/16 AFTER TACKS HAVE COOLED
NOTE:- SPACING BEFORE TACKING DEPENDENT UPON SIZE & NUMBER OF TACKS.
60°
30°
FOR PIPE WALL THICKNESS ABOVE ⅜"
MACHINE TOOL BEVELS
MACHINE TORCH BEVELS
DWG #1
BEVEL PREPARATION.



WALL THICK.	ROLL WELDS 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	POSITION WELDS 1st	OTHERS
3/16"	1/8	1/8	1/8							1/8	3/16"
5/16"	1/8	1/8	1/8	1/8						1/8	3/16"
7/16"	1/8	1/8	3/16	3/16	1/8					1/8	3/16"
1/2"	1/8	1/8	3/16	3/16	1/8	1/8				1/8	3/16"
1 1/16"	1/8	3/16	3/16	3/16	1/8	1/8	1/8			1/8	3/16"
1 1/8"	1/8	3/16	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/8	3/16"

Specifications for Refinery Pumping Equipment

The Petroleum Market Group of the Hydraulic Institute, 90 West Street, New York, has published specifications effective November 1, 1939, entitled "Material Specifications for Pumping Equipment." The six material specifications are:

No. 110—Gray-Iron Castings.
No. 115—Nickel-Base Austenitic Cast Iron (Ni-Resist).
No. 120—Carbon and Alloy Steel Castings.
No. 130—Bronze Castings.
No. 140—Cast Nickel Copper Alloy (Monel.)
No. 520—Heavy-duty Bolting Material and Nuts.

The specifications are apparently intended for refinery rather than oil-field service. The institute hopes that in time the specifications will be processed by the American Society for Testing Materials and for this reason the specifications have been fashioned after and in part copied from A.S.T.M. standards.

Chemicals for Determining High Temperatures

Abstract: Penzig, Ein chemisches Verfahren zur Bestimmung von Temperaturen, Chem. Fabrik, Vol. 12, July 19, 1939, pp. 358-359. Abstract taken from Metals and Alloys, Nov. 1939.

Descriptive. The difficult task of obtaining surface temperatures of moderately heated materials has been made considerably easier through the development of metallic salts which change color at a specific temperature. The salts are mixed with a binding agent and sprayed or brushed on the test piece. Pencils of the salts are now being developed. Twelve compounds have been prepared which produce irreversible color changes at temperatures ranging from 30° to 650° C. Compounds of Cu, Co, Ni, Cr, Mo, U, etc., are used. Changes are due to separation of H_2O, NH_3, or CO_2 or through transitions of ortho salts into pyro salts. Salts developed for the lower temperatures are slightly affected by atmospheric moisture. Suggested uses are to determine surface temperatures of heat exchangers and to locate overheated parts on oil or gas-fired furnaces.

Design of Welded Nozzles

The American Standards Association and the American Society of Mechanical Engineers have codes governing the design of piping systems and pressure vessels, but they recommend little concerning the design of welded connections and field-fabricated pipe fittings. The A.S.M.E. code for unfired pressure vessels, Section U-59, revised August 15, 1938, specifies the design of nozzle openings and connections, but because the method of design may not be entirely clear to designers of piping systems, Fantz and Hooper, of the Midwest Piping & Supply Co., Inc., have presented a paper entitled "Welded Nozzles and Their Reinforcement." This was given before the annual meeting of the American Welding Society on October 23-27, 1939, at Chicago.

The paper explains in detail the sequence of computations, etc., that must be used in designing 90° welded nozzles and methods of reinforcement. Charts and tables, by which the numerical operations of designing are greatly simplified, are also provided. The procedure is divided into two main sections: (1) To determine whether the header or pipe requires reinforcement, and (2) if reinforcement is necessary, how much metal must be added and by what method.

Metallurgical Terms

Indentation Hardness

Hardness may be measured by resistance to wear, to scratching or to penetration by a point or ball which is pressed into the surface of the metal. The last method of measuring hardness is referred to as indentation hardness. Examples of commercial tests are the Brinell and Rockwell tests. It is obvious that hardness measured in such a manner is closely related to the compressive strength of the material or even the tensile strength when dealing with relatively ductile materials such as low-carbon steels.

20,000 feet?

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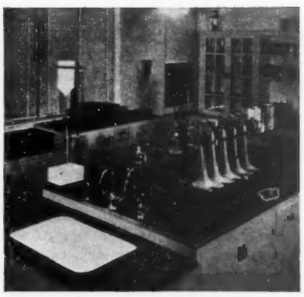

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FIELD OPERATIONS

Summarizing the Week's Developments

WEST TEXAS—Linking activity between the Slaughter and the Duggan fields of Hockley and Cochran counties, together with extension work on all sides of both fields, held the attention of the week in the North Permian basin area. Four new wildcat tests were staked in the southern basin area.

NORTH TEXAS—The Fort Worth basin play throughout many of the North Texas counties has developed another new deep oil field. The discovery is Sinclair Prairie Oil Co.'s No. 1 Benton, just east of the town of Nocona in Montague County. Shows of oil were reported at wildcats in Clay County and new wildcat operations were started in Baylor, Denton and Clay counties.

WEST CENTRAL TEXAS—A new field was opened during the week in Jones County and just north of the Palo Pinto lime producing Griffin field. It is Jones & Stasney and Groover & Rose's No. 1 Humphrey, rated good for 190 bbl. of oil daily from the 1,700-ft. lime.

EASTERN TEXAS—Renewed drilling activity for northwestern Henderson County's Rowe & Baker and Flag Lake fields was seen at the close of the week as several drilling campaigns were launched following the completion of a new flowing well in the Rowe & Baker field. In the Chapel Hill field of Smith County short-term leases and recent unitization efforts are expected to start increased work for the field.

SOUTHEAST NEW MEXICO—Two previously abandoned wildcats, one each in Eddy and Chaves counties, were being rigged up as the week closed for deeper drilling. New locations and completions were slightly below last week's high, but were about normal for a 7-day period in the district.

KANSAS—Discovery wells were completed in Section 30-15-11w, Russell County, and Section 7-25-13, Greenwood County. Five producers were completed in the Bornholdt pool, McPherson County, the state's busiest field. Another Russell County discovery, in Section 8-14-12w, was preparing to test.

OKLAHOMA—A Seminole County wildcat found oil in Wapanucka and Cromwell zones, opening a pool northwest of the Fish field. A gas area was found south of the Lovell pool, Logan County. A wildcat near Guthrie was the big disappointment of the week when salt water was found in Wilcox sand. Deep tests in Caddo, Dewey and Marshall counties were abandoned.

NEBRASKA—Discovery of the second pool in Richardson County was indicated when a wildcat 10 miles west of the Falls City pool swabbed 150 bbl. of oil in 24 hours from Hunton lime.

ILLINOIS—Production declined 13,738 bbl. from last week's peak as fewer than the normal number of completions were reported. The Irvington pool has its second well, but the Kingwood Hamilton County prospect does not appear promising.

ARK-LA-TEX—A gas well is blowing wild in the south extension of the Olla field in La Salle Parish, North Louisiana.

Completions in All Fields

(Week Ended July 6, 1940)

	Oil	Gas	Dry	Total	1940 total comp. to date	1939 total comp. to date
N. Y., Pa., and W. Va.	65	11	6	82	2,029	1,595
Ohio	12	11	8	31	586	489
Indiana	1	0	7	8	189	120
Kentucky	5	3	5	13	255	330
Illinois	66	0	19	85	1,909	1,786
Michigan	11	0	12	23	659	684
Kansas	29	1	11	41	874	605
Oklahoma	19	5	22	46	957	949
Texas:						
North Central Texas	29	0	17	46	1,617	1,262
West Texas	38	0	0	38	1,140	973
Texas Panhandle	17	2	0	19	312	205
East Texas	2	0	0	2	136	261
East Central Texas	1	1	1	3	133	132
East Texas Border	1	0	2	3	37	36
Gulf Coast Texas	21	0	2	23	685	710
Southwest Texas	15	0	2	17	1,164	1,237
Total Texas	124	3	24	151	5,224	4,816
North Louisiana	6	1	2	9	314	270
Gulf Coast Louisiana	32	3	11	46	510	306
Total Louisiana	38	4	13	55	824	576
Arkansas	2	0	0	2	104	124
Montana	3	1	0	4	94	76
Wyoming	2	1	0	3	77	45
Colorado	1	0	0	1	12	4
New Mexico	7	1	1	9	361	314
California	17	0	1	18	562	475
Total United States	402	41	129	574	14,716	12,988
Total previous week	427	52	121	595		
Week ended July 8, 1939	364	45	140	549		

Outstanding Fields—Highlights

(Week Ended July 6, 1940)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	10	41	5	1,209	1,406	28,197
Wasson-Bennett	14	47	8	10,302	304	28,446
Ector County	22	37	11	12,356	871	38,747
Hull-Silk	15	44	7	4,006	302	8,338
Jones County	4	15	1	73	635	7,800
East Texas	4	7	2	51	26,006	372,898
OKLAHOMA						
Oklahoma City	0	11	1	704	855	105,750
Cement	1	16	1	554	313	7,125
KANSAS						
Bornholdt	4	22	5	1,746	77	3,140
Burnett	1	10	1	350	100	6,740
Silica	2	10	0	0	635	10,000
Trapp	3	11	2	630	550	12,650
NEW MEXICO						
Lea County	14	37	4	1,364	2,503	90,530
Eddy County	7	49	3	1,035	589	16,150
LA-ARK-TEX						
Cotton Valley, La. (deep)	0	3	0	0	161	14,450
Olla, La.	1	11	1	360	17	1,850
MICHIGAN						
Allegan County	5	28	4	340	501	7,493
Kent County	2	14	1	65	325	13,003
CALIFORNIA						
Montebello	0	15	0	0	344	21,250
ILLINOIS						
Salem	37	86	30	22,983	2,140	224,018
Centralia	2	38	6	28,423	332	119,650
Louden	15	39	9	1,821	1,536	71,460
Other basin fields	64	226	21	3,641	2,216	79,732
Old fields	....	.....	....	.....	.....	9,986
MISSISSIPPI						
Tinsley	2	5	1	660	61	7,082

Illinois, Indiana and Kentucky

By STAFF CORRESPONDENT

Production in Illinois Falls Off While Activity Drops Slightly

MATTOON, Ill., July 8.—Production in all of the major Illinois districts declined slightly last week as fewer than the normal number of completions were records. Of the 85 completions, 19 were dry holes and the remaining 66 wells had a total initial production of 56,868 bbl. or an average of 862 bbl. per well. Average daily production for the state was 504,486 bbl. which represents a drop of 13,738 bbl. from last week's total of 518,224 bbl.

The Irvington pool appeared to have a second producer as Gulf, 2 Buhl, SW SE SE 23-1s-1w, swabbed 264 bbl. with no water from 1,553½ ft. The pool is, however, surrounded by dry holes and will probably be of small extent.

Picard & McGuire, 1 West estate, NE NE SE 35-2n-1e, an outpost about ¾ mile west of the Centralia field, reached the Devonian at 3,550 ft. and was abandoned, having encountered no shows down to 3,620 ft.

Kingwood, 1 Morris, SW SE NE 34-5s-6e, prospective pool opener in Hamilton County, showed a rapid decline in production. The casing was perforated at 3,155-61 ft. and the hole filled 1,000 ft. with oil. On test it flowed 40 bbl. in 45 minutes and died. It then swabbed 88 bbl. in 14 hours and lost production. After 2,000 gal. of acid the well flowed 123 bbl. in 2½ hours and 224 bbl. in 6½ hours when it died again. On the swab it produced 237 bbl. in 20 hours. Next day it produced 152 bbl. and a few days later dropped to 16 bbl. in 3 hours.

The Centralia field came through with the second 12,000-bbl. producer in as many weeks, when Adams, 17-D Copple, W½ NW SE 35-2n-1e, flowed an estimated 12,000 bbl. from the Devonian at 2,888-98 ft. This well is about ⅝ mile south of Gulf, 5 M. Felton, last week's peak well.

Bond County

The east end of the Ayers trend in Bond County is being watched as two tests near the Devonian. National Petroleum, 1 Spindler Investment, NW NW NW 10-6n-2w, reported saturation in the Benoist sand at 1,025-39 ft., but drilled ahead. Top of the Ste. Genevieve was at 1,145 ft. and the well is drilling at 1,750 ft. Swan-King, 1 Doc Brown, NW SE SW 22-6n-2w, had Cypress at 897 ft., Paint Creek at 969 ft., Aux Vases at 1,068 ft., Ste. Genevieve at 1,139 ft., Fredonia at 1,165 ft., and St. Louis limestone at 1,250 ft.

First Reports

R. Smith, 1 R. Desbrough .... NW NE SW 26-7n-4w

Clark County

North of the old Westfield pool Allen & Sherritt appeared to have a small Carper sand producer in their 2 Harper, SW NW SW 5-11n-14w. After a 30-qt. shot at 860-90 ft., the well filled 100 ft. with oil.

Allen & Sherritt, 1 Harper ..... SE NW SW 5-11n-14w Dry. Elev. 663 ft., Devonian 1,170 ft., T.D. 1,250 ft., P.B. to 1,190 ft.

Clay County Completions

Orchard Oil, 4 Norton ..... SW SW SW 7-2n-8e Dry. Old well P.B. from 3,042 to 2,826 ft., Benoist 2,670-90 ft.

A. R. Madden, 1 Sloan ..... NE SE SW 6-4n-5e Dry. Louisiana lime 4,040 ft., Chattanooga 4,080 ft., Devonian 4,148 ft., T.D. 4,296 ft.

Kingwood, 1 Danks ..... NW SE SE 5-5n-5e Dry. Top Fredonia 2,500 ft., T.D. 2,723 ft.

W. C. McBride, I W. E. Smith ... SE NE NW 22-5n-5e Dry. Base Pennsylvanian 1,590 ft., other tops, Menard 1,789 ft., Cypress 2,140 ft., Benoist 2,314 ft., Aux Vases 2,362 ft., Ste. Genevieve 2,419 ft., St. Louis 2,561 ft., T.D. 2,570 ft.

Clinton County

Tatum, 1 Schrage, NE NE SW 17-3n-4w, was apparently heading for the St. Peter after finding the Galena at 2,950 ft. and the Kimmswick at 2,965 ft. Total depth was 3,277 ft. Southwest of the old Carlyle

(Continued on Page 95)

INDIANA

Last week, Indiana had eight completions of which seven were dry and the single producer a 25-bbl. well in the southeast side of the Griffin pool. Several wells are nearing completion in this pool and at least three appear to be producers. Apex Drilling Co. 1 Stiles, SW NW NE 14-3s-14w, pumped 8 bbl. the first hour from 1,835-48 ft. Hall Edwards 3-B Maier, SE NE SE 14-3s-14w, produced on the pump from 2,078-97 ft., and is testing. Ray Ryan, 2 Keck, NW NW NW 34-3s-14w, is flowing after a shot and acidization from 2,776-2,801 ft.

In the eastern part of the state three tests are shut down below the top of the Trenton. Ray Ash 1 Shaw, SE SE SE 12-26n-9e, Huntington County, got the top of the Trenton at 989 ft. and water at 1,007 ft., where the well is shut down. Donald Davis 1 Perry, NW NW NE 17-24n-12e, Jay County, is shut down with water from 1,000-50 ft., after reaching the top of the Trenton at 980 ft. Frontier Petroleum 1 American Life Insurance Co., SW NW SE 8-21n-8e, Madison County, is shut down at 1,034 ft. Top of the Trenton was at 933 ft.

Putnam County Completion

C. L. Williams, 1 Cooper ..... SW SW NE 10-13n-14w Dry. St. Peter 2,430 ft., H.F.W. 2,450-60 ft., Knox dolomite 2,462 ft., T.D. 2,560 ft.

Fountain County Completion

Fountain Oil, 1 Glasscock ..... SE SE SW 2-18n-8w Dry at 200 ft.

Greene County Completion

Schicter & Lyon, 1 Kiser ..... NW NW NW 4-7n-5w Dry. St. Peter 3,187 ft., H.F.W. 3,214 ft., T.D.

Gibson County Completion

J. W. Chamberlain, 1 Shawhan ..... Don. 121-1s-10w Dry. Water 1,641-44 ft.

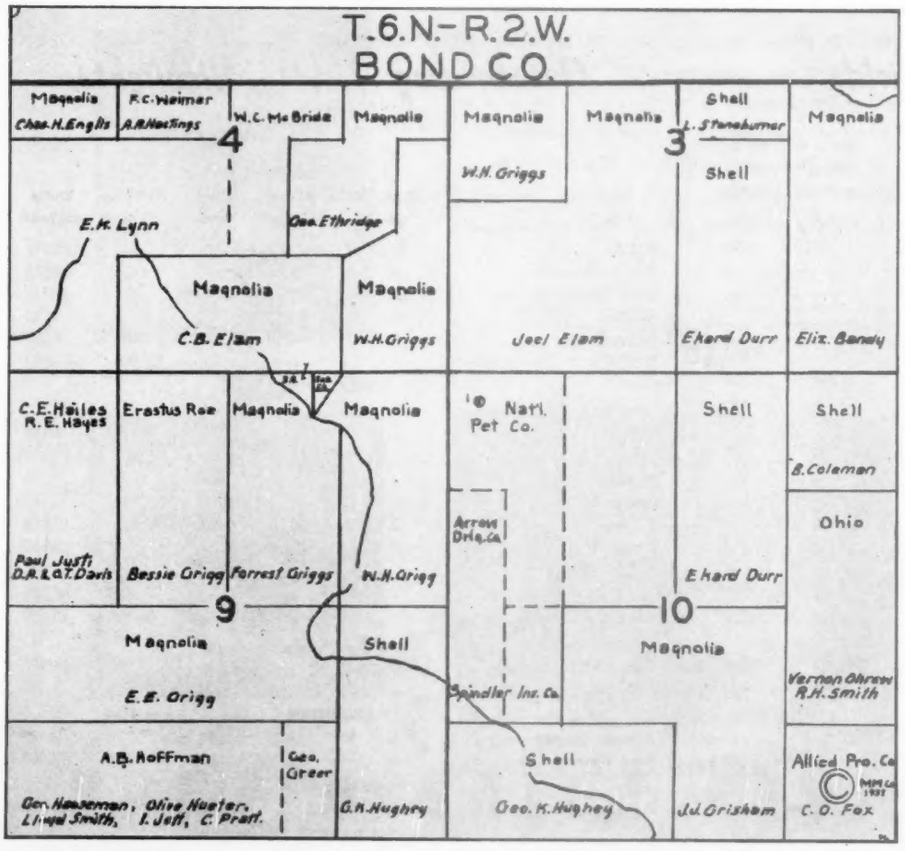
(Continued on Page 106)

WESTERN KENTUCKY

Butler County, Silver City district: J. C. Miller, trustee's No. 1 M. J. Arnold, dry hole through Jones sand, total depth 608 ft. Wilson Brothers' No. 1 Mrs. B. Smith, drilling at 100 ft. Huntsville district: Billy Phillips and others' No. 1 Gardiner, spudding in.

Daviess County, Utica district: Riley & Marhill Oil Co.'s No. 1 J. B. Baird, old Barlow well drilled deeper through McClosky from 1,401 ft.; total depth 1,712 ft.; dry and abandoned. Stewart & Snyder's No. 6 Roy Hansford, spudding in. Borders & Schaffer's No. 2 William and J. E. Johnson, 30 bbl., naturally, in Jett sand at 1,135-62½ ft.; total depth 1,162½ ft.; to shoot. Maceo district: Jess Ashby and others' No. 1 Mrs. M. Dixon, dry hole through Jett sand, total depth 810 ft. Handyville district: Master Oil Co.'s No. 7 E. W. Richmond, drilling at 625 ft.

(Continued on Page 104)



The National Petroleum Co., 1 Spindler Insurance Co., NW NW NW 10-6n-2w, Bond County, is the most closely watched test in the state at the present time. If it is a producer it will open a wide expanse of new territory to Illinois operators. The test is being drilled as a "tight hole" but interest in it was heightened last week when it was unofficially reported that good saturation was found in the Benoist sand. As last reported the test was drilling below 1,750 ft. It completed as an oil well, it will be the first major discovery in the area since the revival of activity in Illinois. Practically all of the major oil companies and many independents are interested in the area.

West, Central and Panhandle Texas

By R. MARNE SANFORD

Slaughter and Duggan Pools Being Linked by Outposts

MIDLAND, Tex., July 8.—The staking of two new semiwildcat field-extension tests in the Slaughter-Duggan area of Hockley and Cochran counties in the north Permian basin area of West Texas, together with the near completion of several other outpost and extension tests in the vast area, led the week's activity in the district.

Holding the attention in the southern part of the Permian basin district was the staking of new deep wildcat tests in Andrews, Crane, Sutton, and Ward counties, two of which are contracted to the Ordovician formations.

Not unlike the steady linking process undergone last year for the Wasson and the Bennett areas in Yoakum County, the Slaughter and Duggan fields, located in Hockley and Cochran counties, respectively, are rapidly being linked into one enormous producing area. Two tests were started about a week ago which were scheduled to be the most closely watched of any drilled in the area. As the result of a farmout deal the past week, two additional outpost locations have been made which will attract equal attention while being drilled. Cascade Petroleum Co., Fort Worth, headed by J. C. Davidson, farmed out two tracts south of the Duggan field in Cochran County to Osage Drilling Co. A test on one of the tracts has already been spudded and was last reported drilling below 2,200 ft. It is Osage, 1 Moore, 547 ft. from the south line and 510 ft. from the west line of the Moore tract in League 53, Oldham County School Lands. The farmout tract consisted of the southwest 64 acres of the Moore tract.

The second tract acquired by Osage Drilling Co. lies about 2 miles to the east and is about ½ mile from the county line. The tract is the west half of Labor 1, League 53, Scurry County School Lands. It is a 64-acre piece carrying a drilling obligation and being about 1½ miles south of the Atlantic, 1 Boyd, eastern edge test for the Duggan field which was completed for 523 bbl. daily.

Located about midway between the northern parts of the two fields and in Labor 13, League 50, Scurry County School Lands, Magnolia, 1-B Mallett, was last reported drilling below 2,480 ft. The outpost, if completed for commercial production, will be the first definite link between the main bodies of the two fields. It is 1½ miles east of production in the Duggan field and about 3½ miles northwest of production in the Slaughter field.

About 4 miles south of the eastern edge of production in the Duggan field and about 3 miles west and slightly south of production in the Slaughter field, Texas Co. was last reported drilling in lime below 5,055 ft. and nearing the 5,100-ft. pay of the area at its 1-F Mallett, Labor 25, League 51, Scurry County School Lands. It is about a mile northeast of a lone producer brought in more than a year ago by Texas Co. in the NE cor. Section 7, Block G, P.S.L. Survey, less than a mile north of the Yoakum County line.

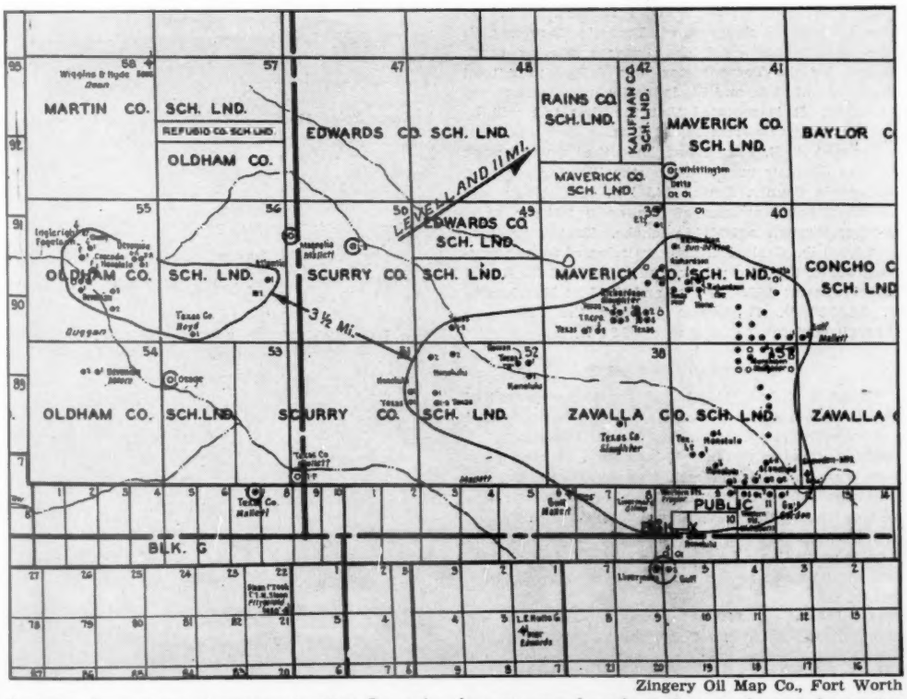
Meanwhile, extension activity continues at the south end of the Slaughter field proper, which was recently extended into northern Terry County. The second and largest producer for Terry County was gaged by Gulf Oil Corp. at its 3 Mallett, Section 5, Block 11-D, C.&M. Survey, an east offset to George P. Lovermore, 1 M. E. Jacobson, the Slaughter field extensioner into Terry County. The well flowed 281 bbl. of oil in 6 hours to rate a daily potential of 1,124 bbl. The potential is several hundred barrels larger than many of the inside wells in the Slaughter field.

New wildcat locations were made in Andrews, Crane, Sutton, and Ward counties during the week, the Crane and Sutton county tests being contracted to the Ellenburger lime of Ordovician age. Moore Brothers Exploration Co., Midland, located the Crane County test as their 2 Barnsley, about ¾ mile northeast of a deep wildcat finished as a failure by the operators several years ago. The location falls 660 ft. from the north and east lines of Section 42, Block 32, P.S.L. Survey, 3 miles southeast of Gulf, 1-A Tubb, deep discovery of a month ago southeast of the Sand Hills field.

Sutton County's deep operation was staked by W. M. Lyles and L. H. Dunn as their 1 C. D. Wyatt. The location is 330 ft. from the north and east lines of Section 4, Block 6, T.W.&N.G. Survey. Although projected to the Ordovician section, the wildcat is expected to encounter it at a depth less than 2,500 ft., the location being considerably nearer the outcrop than in far West Texas.

Texas Pacific Coal & Oil Co. and Seaboard Oil Corp. have given Andrews County a new wildcat operation in their 1-A Midland Farms, located in NE NW Section 1, Block 40, Township 1n, T.&P. Survey. It is about 16 miles northeast of the North Cowden field in Ector County and is in the extreme southeastern corner of the county. Contract depth is 5,000 ft.

Ward County's new operation was the long-awaited wildcat location by Sinclair Prairie Oil Co. in the southeastern part of the county. Tentatively announced several weeks ago, the definite location has been staked 330 ft. from the northwest line and 2,310 ft. from the southwest line of Section 32, Block 4, H.&T.C. Survey. It is 1 Wirt Davis, approximately 3 miles south of the Shipley area and an equal distance south and slightly west of Gulf Oil Corp.'s actively drilling deep test, 5 Wristen Brothers. Sinclair Prairie company's wildcat is contracted to 3,500 ft. and is not expected to test the deep levels.



Zingery Oil Map Co., Fort Worth

Centering the majority of attention in West Texas for the past several weeks is the recently started extension drilling program for the Duggan and Slaughter fields of Cochran and Hockley counties, respectively. The encircled areas were the extent of two fields about 3 weeks ago, Slaughter being the larger. Not only extending both fields in all directions, but work is also tending to link the two areas into one common field

WEST CENTRAL TEXAS

FORT WORTH, Tex., July 8.—Jones County was given a new field discovery when Jones & Stasney, geological firm of Albany, together with Groover & Rose, drilling contracting firm also of Albany, prepared to complete their 1 B. C. Humphrey, located just north of the Palo Pinto lime-producing Griffin field.

The new discovery drilled pay from 1,708-20 ft. and flowed 191 bbl. of oil in 24 hours following a 500-gal. acid treatment. It is the first production from this Cisco horizon in the northeastern part of Jones County. The discovery is near a Palo Pinto lime wildcat drilled by the operators several months ago which showed for a 100-bbl. well while drilling through the section. The well is located in the SE SE SW Section 192, B.B.B.&C. Survey, about a mile north of production in the Griffin field.

A new wildcat test for Jones County was being rigged up for spudding as the week closed. It is Mike Kadane, 1 Emma Spraberry, located 4 miles south of Anson and 2 miles north of the two-well Prichard field. The location falls 330 ft. from the north and west lines of the Spraberry tract in the SW Section 11, Block 2, S.P. Survey.

Callahan Discovery Increases

Production was materially increased by a 7-qt. shot in the recent discovery well in Callahan County. It is H. W. Lee, 1 Harris, SW NW SW Section 99, B.B.B.&C. Survey, 6 miles northwest of Baird. The test was last reported flowing at the rate of about 50 bbl. daily, however, the bottom joint of the casing was damaged by the shot and operators were unable to run swedge and clean out the hole. Saturation was found from

(Continued on Page 86)

Texas and Louisiana Gulf

By
NEIL WILLIAMS

Many Years Exploration Are Rewarded at Calcasieu Lake

HOUSTON, Tex., July 8.—Exploration around the flanks of old salt-dome structures continues to add to the reserves of the Gulf Coast district. New producing sands were opened the past week at the Leeville and Chacahoula structures in La Fourche Parish, coastal Louisiana, while in Cameron Parish, an attempt was being made to open the first production for the Calcasieu Lake dome.

Superior Oil Co. cemented 7-in. casing on bottom at 9,547 ft., preparatory to testing 3 Calcasieu Lake, located on the east flank of the Calcasieu Lake dome in 1-9s-14w, Cameron Parish. Casing was cemented after an electrical survey showed a sandy shale section showing oil from 8,560-70 ft.; gas sand at 9,450-60 ft., and at 9,485-95 ft. The well is the third to be drilled on the structure by Superior Oil Co., two previous tests to the northeast having been abandoned after encountering rock salt at 2,382 ft., and at 3,614 ft. The second well drilled salt formation to a depth of 7,588 ft. before the hole was abandoned.

The history of development of this dome dates back to 1928 when salt was discovered by the Louisiana Land & Exploration Co., which drilled several tests, finding salt but failing to prove production. The acreage was then acquired by the Texas Co., which, over a period of several years, drilled several deep tests, all of which were dry. The dome underlies the bed of Calcasieu Lake, and all submerged acreage was returned to the Louisiana Land & Exploration Co., and this company made a deal with Superior Oil Co., which acquired the block of 11,400 acres. In the transaction, Louisiana Land & Exploration Co. had the option, if the first well was a producer, to become a joint operator with Superior Oil Co., or the company could retain a twentieth overriding royalty.

A new producing area on the southeast flank of the Chacahoula dome, La Fourche Parish, was being opened as Sun Oil Co. tested 2 Cypress in 75-15s-15e. Drilled to a total depth of 8,016 ft., 9⅝-in. casing was cemented for a production test following an electrical survey which showed sand bearing oil from 7,988-96 ft. This is the first test to be drilled on this side of the structure, and the sand section is reported to be different from that which is found on the southeast flank.

Leeville Field

In the Leeville field, La Fourche Parish, Texas, 73 Leeville was completed in a new sand at 8,482-8,527 ft., for an initial production of 350 bbl. per day flowing through ¼-in. choke. The well is located on the east flank of the structure in 27-21s-22e. This is the deepest producing sand encountered on the structure.

Humble, 44 Orleans, which opened a new sand on the Potash dome, Plaquemines Parish, flowed 519 bbl. per day through ¼-in. choke. The well was drilled to a total depth of 4,286 ft., and the completion was made with 5½-in. casing cemented at 4,154 ft. The normal producing depth of the field ranges from 7,900-8,050 ft.

Preparations were being made to test two wildcats in Cameron and Vermilion parishes. On the Chenier prospect, Cameron Parish, Phillips Petroleum Co. cemented 1,221 ft. of 5½-in. casing in 1 Miami Corp., preparatory to testing a gas sand logged by an electrical survey at 10,196-10,207 ft. In Vermilion Parish, Union Oil Co. of California is preparing to test 1 Walter White, 17-15s-1e. The well is bottomed at a total depth of 11,092 ft., and 602 ft. of 5½-in. casing was cemented at 10,670 ft., preparatory to testing a gas sand logged by an electrical survey at 10,520-40 ft.

Texas, 1 Trahan, about 1 mile southeast of the Erath field, Vermilion Parish, is coring in shale below 11,226 ft., and prospects of the well being completed as a producer are not encouraging as the well is reported to be checking 125 ft. structurally lower than the discovery well.

In the Neale field, Beauregard Parish, Atlantic Refining Co. was preparing to complete its third Wilcox producer which will extend production ¼ mile to the east. Broken sand and shale showing oil was cored in the Wilcox formation at 8,360-8,402 ft., and 5½-in. casing was cemented after the hole had been drilled to a total depth of 8,430 ft.

Paradis Field

An extension to the Paradis field, St. Charles Parish, was indicated as Texas Co. prepared to complete 1 Sunset Realty Co., 38-14s-20e. The hole is bottomed at 11,192 ft., and 7-in. casing was cemented at 11,190 ft. The well is reported to have checked structurally low to other producers on the structure, and the well may open production from a new sand.

Interest in the Texas coast was centered on the Red Fish Reef prospect, offshore from Chambers in Galveston Bay where Humble Oil & Refining Co. is preparing to test 1-247 State. Drilling was halted at 9,448 ft. Seven-inch casing was cemented several days ago at 9,224 ft. after an electrical survey and side-wall cores showed possible oil or gas production in a broken sand and sandy shale section at intervals from 9,025-9,145 ft.

A new producing area was opened in the Seabreeze area, Chambers County, as Sun, 1 C. C. Smith, about 2½ miles north of production, flowed 164 bbl. of oil and 18 bbl. of salt water on a 12-hour gage. The well was gaged for 10 hours on a ¼-in. choke and for 2 hours on ⅛-in. choke. Tubing pressure was 2,575 lb. The well was completed in the Frio sand through perforated casing at 8,849-53 ft.

Mechanical trouble has delayed the scheduled production of Glenn H. McCarthy, 1 Munson, located on the Bailey's Prairie prospect, Brazoria County. This well, which may establish a new producing depth record for the Texas sector, was drilled to a total depth of 11,860 ft. and 5½-in. casing was cemented at 11,841 ft. It is reported that the first test will be made at intervals from 11,642-52 ft.

Texas, 1 A. B. Pierce, completed the previous week to open distillate production on the Blessing prospect, Matagorda County, flowed 143 bbl. of distillate and an unestimated amount of gas on a 23-hour gage, flowing through a 16/64-in. choke. Tubing pressure was 2,900 lb. Geological markers released by the company shows the Discorbis topped at 5,767-98 ft., Round Marginulina at 6,576-6,606 ft., and the Flat Marginulina at 6,636-66 ft. Production is from the Frio sand through perforated casing at 8,265-90 ft.

Liverpool Discovery

Rowan & Nichols, 1 Hubbard, the discovery well of the Liverpool field, Brazoria County, was completed for an initial production of 187 bbl. of 40.5-gravity oil per day, flowing through ⅛-in. choke. Tubing pressure was 1,525 lb., and casing pressure 1,725 lb. The well was drilled to a total depth of 10,008 ft., and was completed the previous week through perforated casing at 8,538-54 ft. Several major companies hold close-in protection acreage, and additional development is expected to be announced for the area in the near future.

Location for a 10,000-ft. test was announced for the old Hull field, Liberty County. The well is to be drilled by Gulf Oil Corp. as 1 Phoenix, located about a half mile south of the company's 115 Phoenix, a scheduled deep test which was abandoned after encountering salt formation.

Sun, 9 Hughes is the second producer in the new sand recently opened at the Greens Lake field, Galveston County. The well flowed 10 bbl. of 32-gravity oil per hour through ¼-in. choke from perforated casing at 6,550-62 ft. Tubing pressure was 400 lb., and casing pressure 107 lb.

West Ranch Outpost

Approximately 1 mile southwest of the West Ranch field, Jackson County, W. Stewart Boyle is reported to have cemented casing preparatory to testing 1 Bennview Development Co., after an electrical survey and side-wall cores showed possible production. The well was drilled to a total depth of 6,002 ft., and 5½-in. casing was reported cemented below 5,600 ft. Details as to where the sand was logged was not available. The well was drilled on a farmout lease from Shell Oil Co., Inc., located in Lot 35 in the Valentine Garcia Survey.

Joyce Richardson continues to test 1 E. Marks, the discovery well of the Ogburn field, Harris County, and on a recent test the well flowed 35 bbl. of distillate per day through ¼-in. choke on top and 9/64-in. bottom-hole choke. Tubing pressure was 600 lb., and casing pressure 2,500 lb.

A scheduled production test of E. J. Deupree, 1-A Texas Long Leaf Lumber Co., a wildcat located about 5½ miles southeast of Lovelady, Walker County, was attracting attention. While little information has been released on this well, the hole is said to be bottomed at 3,207 ft., and 5½-in. casing was cemented approximately 2,900 ft. A show of oil and gas was reported in the Wilcox sand at approximately 2,900 ft. The well is several miles east of the Kittrell field in the Mary Milsap Survey.

TEXAS GULF COAST COMPLETIONS IN PROVEN FIELDS

Brazoria County

Anchor field: Sun, 1 Stern, perf. casing 10,570-74 ft., 102 bbl. oil and 275 bbl. salt water, ¼-in. choke.
Liverpool field: Rowan & Nichols, 1 Hubbard, perf. casing 8,538-54 ft., 187 bbl., ⅛-in. choke.

Chambers County

Anahuac field: Humble, 55 Middleton, sand 7,199-7,225 ft., 711 bbl., ¾-in. choke.
Barbers Hill field: Texas Gulf, 5-C Kirby Petroleum Co., perf. casing 4,865-90 ft., 504 bbl., ¼-in. choke.
South Cotton field: Humble, 3-D Lawrence, sand 5,491-6,516 ft., 115 bbl., ⅛-in. choke.

Galveston County

Dickinson field: Humble, 2 Leith, 8,830 ft., 102 bbl., ¼-in. choke.
Pan American, 14 Stewart, perf. casing 8,560-90 ft., 162½ bbl., ⅛-in. choke.
Tomball field: Humble, 1-B Stehly, sand 5,566-77 ft., 64 bbl., ¼-in. choke.

Jefferson County

Clam Lake field: Shell, 6 McFaddin, top sand 5,846 ft., total depth 6,515 ft., 62 bbl. oil and 127 bbl. salt water, ¼-in. choke.
Fannett field: Gulf, 5 Bordages, sand 8,196-8,226 ft., 949 bbl., ¼-in. choke.

Liberty County

Esperson field: General Crude Oil, 33 Moores Bluff, sand 2,822-42 ft., 210 bbl. fluid, 22 per cent salt water, ¼-in. choke.
Hardin field: Humble, 1 Rye, sand 7,600-25 ft., 77 bbl., ⅛-in. choke.
Liberty field: Ganar, 12 Harrison, sand 1,500-20 ft., 107 bbl., pumping.

Polk County

Segno field: Gordo, 10-A Wing, sand 8,151-82 ft., 687 bbl., ¼-in. choke.
Gulf, 37 Wing, sand 8,059-86 ft., 306 bbl., ¼-in. choke.
Humble, 24-B Kirby Lumber Co., sand 8,104-90 ft., 358 bbl., ¼-in. choke.

Wharton County

Hillje field: Texas, 1 Benner, sand 5,212-36 ft., 86 bbl., ⅛-in. choke.
Pickett Ridge field: Texas, 2 Wittig, 4,594 ft., 135 bbl., 13/64-in. choke.
Texas, 38-A Pierce, sand 4,788-97 ft., 90 bbl., ⅛-in. choke.
Withers field: Texas, 53-B Pierce, top sand 5,293 ft., T.D. 5,541 ft., 33 bbl., 5/64-in. choke.
Texas, 54 Pierce, sand 5,532-44 ft., 123 bbl., ⅛-in. choke.

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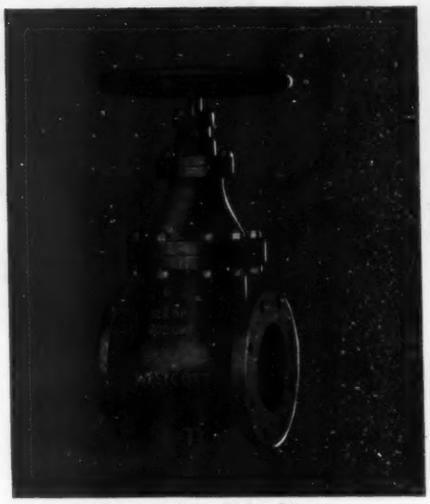
—John Ruskin



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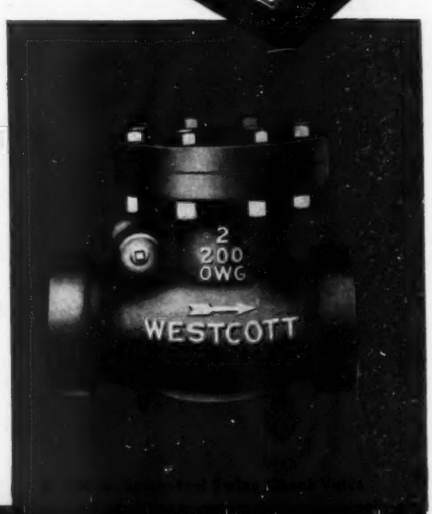

Continental

SERVING THE OIL AND GAS INDUSTRIES

Southwest Texas District

By F. L. SINGLETON

Two Cockfield Trend Pool Openers in Duval County

CORPUS CHRISTI, Tex., July 8.—The discovery of two new pools along the Cockfield trend in western Duval County, retesting of a prospecting pool opener in Calhoun County were the highlights of development in the Southwest Texas district the past week.

Bridwell, 1-A Rogers, a wildcat 3 miles southwest of the Fitzsimmons field, Duval County, which has been in the process of completion for the past 2 weeks, was completed for an initial production of 122 bbl. of 43.5-gravity oil per day, flowing through a 7/64-in. choke with tubing pressure 1,175 lb., and casing pressure 1,550 lb. There was no showing of salt water. This well was drilled to a total depth of 4,327 ft., and was originally tested through perforated casing at 4,323-25 ft., where it tested dry gas. Because of mechanical trouble the operators were unable to squeeze off the perforations, and the well was scheduled to be completed as a gas well, but the well began to make pipe-line oil shortly after it had cleaned itself of wash water and drilling mud. Location is in the J. Poitevent Survey 275.

In the same county and approximately 3 miles north of the Muralla field in Survey 275, Forest Development Co. cemented 5½-in. casing on bottom in 1 Rodgers, preparatory to completing in the Pettus sand section at 4,284-4,307 ft., where two drill-stem tests recovered gas and oil. The first test was made at 4,284-96 ft., and in 11 minutes working pressure built up to 675 lb., and 5 gal. of distillate was recovered. Sand with an oil odor was cored at 4,296-4,307 ft., and a 22-minute drill-stem test at 4,296-4,306 ft. tested 40-lb. working pressure and 175 ft. of clean oil. There was no showing of salt water.

Six miles southeast of Seadrift, Calhoun County, Coronado Corp., 1 J. J. Welder is being recompleted due to a high gas-oil ratio. Drill-stem testing the previous week through perforated casing at 5,649-51 ft. recovered 930 ft. of 37-gravity oil, but after tubing was run for final completion, the well cleaned itself through ⅛-in. choke, flowing an estimated 500,000 cu. ft. of gas with a spray of distillate. Tubing pressure is 1,900 lb., and casing pressure 2,200 lb. The well has been killed and the perforations will be squeezed off, and another test will be made at approximately the same level. The well is located on a large block of several thousand acres, centering in Section 8, Eusbio Hidalgo Survey, and was drilled to a total depth of 10,002 ft. An electrical survey is reported to have shown several sand sections, but drill-stem testing at various depths below 8,000 ft., were not satisfactory. Details of the electrical survey are not available as the well was drilled extremely "tight."

Aransas County

Continental, 2 St. Charles, completed the previous week as a distillate producer in the St. Charles field, Aransas County, has been killed to retest. On an 8-hour gage ended at 7 a.m. July 1, the well flowed 9 bbl. of distillate through a 7/64-in. choke. Tubing pressure was 1,300 lb., and shut-in casing pressure 1,500 lb. This well was drilled as a relief well to 1 St. Charles Co., the discovery well which blew out in January from a total depth of 9,335 ft., and after the well had been killed, the hole was plugged back and a production test was made through perforated casing at 7,636-45 ft.

Offshore from Kleberg County, and located in Laguna Madre Bay, Skelly Oil Co. continues to test 1 State, but thus far production tests have been unsatisfactory due to salt-water encroachment. The latest test was made at 7,394-98 ft., and on an 8-hour drill-stem test 2,430 ft. of fresh water and 3,300 ft. of salt water was recovered. Fifteen per cent of the fluid was pipe-line oil.

Hewitt & Dougherty, 1 Carver, 1½ miles southwest of the Wade City field, Jim Wells County, tested 534,000 cu. ft. of gas per day, flowing through ⅛-in. choke. Tubing pressure 1,520 lb., and shut-in casing pressure 1,650 lb. The well is making a slight spray of distillate, but the volume has not been gaged. Production is from a new sand at 5,276-86 ft.

Two miles north of the Wade City field, Henshaw Bros., 1 L. P. Allen was abandoned at a total depth of 5,232 ft., with no shows of oil or gas reported. In the field proper, several wells had cored the sand and were in the process of completion. Anderson-Prichard Oil Corp., 3 Mueller cored sand at 4,905-10 ft., and 5½-in. casing was cemented on bottom. Gilcrease, 1 Pundt was being completed in sand at 4,313-19 ft., while Rodney DeLange was completing 11 Maggie McNeil through perforated casing at 4,934-38 ft. The recent cut in per-well allowables is resulting in a gradual slowing down of drilling activity.

Gallagher Field

In the newly opened Gallagher field, Jim Wells County, M. M. Miller & Sons, 2 Gallagher, the second well drilled in the field, and south of the discovery well, is drilling ahead below 5,276 ft., after a 20-minute drill-stem test at 5,216-25 ft., tested 10 lb. working pressure and recovered 120 ft. of oil-cut drilling mud.

Humble Oil & Refining Co. opened a gas field 2½ miles northwest of Corpus Christi in Nueces Bay, Nueces County, with the completion of 1 State which tested 380,000 cu. ft. of gas per day, flowing through a 7/64-in. choke with tubing pressure 135 lb. The casing was sealed off. The well was drilled to a total depth of 5,200 ft., and was completed through perforated casing at 3,974-90 ft. Offsetting this well to the west, the company has started drilling operations on 1-B State in Tract 706.

Approximately 1½ miles east of Robstown, Texas Conservative, 1 T. H. Isensee was being watched with much interest as it drilled in shale below 6,129 ft. Sand with an oil and gas showing was reported cored at 5,975-81 ft., but an 18-minute drill-stem test at 5,968-84 ft. recovered 300 ft. of salt water with no showing of oil or gas. In the Robstown townsite, Richardson, 1 Boy Scouts of America is drilling in shale below 6,435 ft., which is several hundred feet deeper than the discovery well. No showings are reported, although no information is being released by the company. The outcome of this well will no doubt retard any large-scale drilling program within the townsite where 39 drilling permits have been granted by the Robstown city council. Drilling permits on seven more blocks were granted to Richardson Petroleum Corp., while Shell Oil Co., Inc., was granted permits on four blocks.

North McFaddin Field

Production from a deeper sand was opened in the North McFaddin field, Victoria County, as Texas Gulf Producing Co. completed 1 Linville for an initial production of 75 bbl. per day flowing through a 7/64-in. choke. The well was drilled to a total depth of 6,513 ft., and production was obtained by perforating casing at 6,212-14 ft. The company's 1 Wisehart was completed in the regular pay at 5,150-55 ft. for an initial production of 12 bbl. of distillate per day, flowing through ¼-in. choke.

Location for another Wilcox test was made in the Cotulla townsite area, La Salle County, by H. R. Cullen. The well is located on the Wildenthal lease, Lot 9, Block 69, J. R. McMullen Survey. Humble Oil & Refining Co. has agreed to contribute $7,500 toward drilling of this well which is scheduled to be drilled to a depth of 6,000 ft. Should production be developed at a lesser depth, Humble Oil & Refining Co. is not obligated. H. R. Cullen, 1 Washburn, H.&G.N. Survey 67, is temporarily shut down at a total depth of 7,400 ft. This well has created considerable interest in this county as a drill-stem test at 5,405-28 ft., recovered 100 ft. of 42-gravity oil.

SOUTHWEST TEXAS COMPLETIONS IN PROVEN FIELDS

Aransas-San Patricio Counties

McCampbell field: Bay Tex, 1 Davenport Wilson, perf. casing 7,130-34½ ft., 97 bbl., ⅛-in. choke.
S. E. W. Oil Corp., 1 Duphorn-Gile, perf. casing 7,123½-31½ ft., 122 bbl., 7/64-in. choke.

Caldwell County

Dale field: Ralph Ogden, 9 Talley, 2,105 ft., 67 bbl., pumping.
R. Ogden, 10 Talley, 2,210 ft., 99 bbl., pumping.
Luling field: Magnolia, 18-A McKean, 2,110 ft., 40 bbl. oil and 380 bbl. sulfur water, pumping.

Duval County

Cedro Hill field: Magnolia, 6 Duval County Ranch Co., perf. casing 1,450-56 ft., gas well.
Hoffman field: Argo Oil Corp., 9 Rodden, 2,845 ft., 75 bbl., pumping.

Jim Hogg-Brooks Counties

Colorado field: Humble, 13 King, 3,046 ft., 242 bbl., 7/64-in. choke.
Kelsey field: Humble, 50 McGill, 4,736 ft., 102 bbl., ⅛-in. choke.

Jim Wells County

Orange Grove field: Magnolia, 1 Schmidt, 5,112 ft., 152 bbl., 9/64-in. choke.
Plymouth, 1 Boehm, perf. casing 5,102-06 ft., 76 bbl., 7/64-in. choke.
Premont field: A. L. Parker, 2-P Seeligson, perf. casing 2,360-64 ft., 40 bbl., pumping.
Simmons & Noyles, 1 Edwards, 2,375 ft., dry.
Wade City field: Anderson-Prichard, 2 Mueller, perf. casing 4,892-4,905 ft., 216 bbl., 7/64-in. choke.

Medina County

Chicon Lake field: T. Bain, 3 Thompson, sand 390-437 ft., 2 bbl., pumping.
A. A. Murrell, 6 fee, sand 399-405 ft., 2 bbl., pumping.

Nueces County

Agua Dulce field: Union Prod., 8 Talbert, 6,977 ft., 30 bbl. dist., open flow.
South Clara Driscoll field: Wellington, 2 Martin, sand 4,990-5,002 ft., 49 bbl., 7/64-in. choke.

Refugio County

Fox field: Union Prod., 25 Fox, sand 5,876-84 ft., 24 bbl., ¼-in. choke.
La Rosa field: Coronado, 1 G. S. Rooke, perf. casing 5,835-48 ft., gas well.
Tomoconnor field: Quintana, 14 Heard, perf. casing 5,888-96 ft., 661 bbl., ¼-in. choke.

San Patricio County

East White Point field: Plymouth, 1 Solar-Morgan, perf. casing 5,664-80 ft., 113 bbl., 7/64-in. choke.
Sinclair Prairie, 4-977 State, perf. casing 5,608-20 ft., 102 bbl., ⅛-in. choke.
W. R. R. Oil Co., 4-973 State, perf. casing 5,582-92 ft., 137 bbl., 7/64-in. choke.

Starr County

Hayden field: Denzil Oil, 1 Seabury, 1,346 ft., 3 bbl., pumping.
Margo field: T. E. Stephens et al, 1 Barrera, perf. casing 2,152-58 ft., gas well.
Ricaby field: Panal, 6 Hinojosa, 1,603 ft., dry.
Rincon field: W. R. Davis Co., 11-A Slick, perf. casing 4,226-44 ft., 193 bbl., 7/64-in. choke.
W. R. Davis Co., 2-A Allc, 2,215 ft., dry.
W. R. Davis Co., 23-B Slick, perf. casing 3,768-77 ft., 176 bbl., 7/64-in. choke.
Sun field: Sun, 8 Speer, perf. casing 4,894-97 ft., 159 bbl., 7/64-in. choke.
Sun, 1-C G. H. Speer, perf. casing 4,626-30 ft., 176 bbl., 7/64-in. choke.

Victoria County

McFaddin field: Barnsdall, 36 McFaddin, sand 4,394-4,407 ft., 124 bbl., 17 hours, 9/64-in. choke.
North McFaddin field: Texas Gulf, 1 Linville, perf. casing 6,212-14 ft., 75 bbl., 7/64-in. choke.
Texas Gulf, 1 Wisehart, perf. casing 5,150-55 ft., 12 bbl. distillate, ¼-in. choke.
Telferner field: Heyser, Heard & Clardy, 1 Fimbel, 2,772 ft., dry.

Webb County

Glen field: O. W. Killam, 3 Bruni, sand 2,182-86 ft., 140 bbl., pumping.
Transwestern, 3 Bruni, sand 2,165-80 ft., 256 bbl., pumping.
Volpe field: Harvey & Henderson, 12 Benavides, 2,477 ft., dry.
Magnolia, 39 Volpe-Benavides, sand 2,450-66 ft., 115 bbl., pumping.

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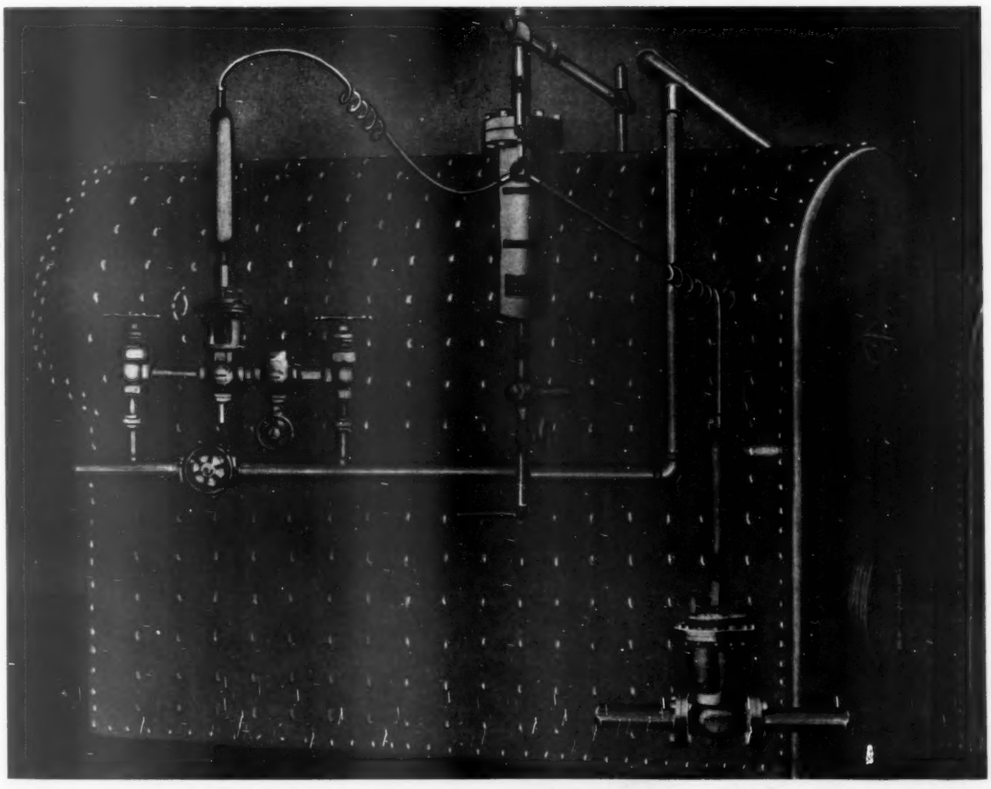

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Kansas Developments

By

DAL DALRYMPLE

Complete One Pool Opener in Russell, Testing at Another

Completion of discovery wells in Russell and Greenwood counties featured field operations in Kansas the past week, but only routine operations were reported in the proven fields. The Bornholdt pool in McPherson and Rice counties had the best record of the week, with five completions and several other wells in the pay zone. Another Russell County pool opener was due to test.

Northeastern Kansas continued to attract attention, as Forest City basin operators, encouraged by developments in the Falls City, Neb., area, extended exploration. A wildcat was started northwest of Oskaloosa, Jefferson County. A second test in Douglas County was spudded, as another wildcat in that county found oil showing in shallow zones. A Nemaha County wildcat was due to spud soon and four tests were listed in the shallow gas fields in Johnson County.

S. W. Forrester's No. 1 Altenbernd, SW SE NW Section 35-12-20, Douglas County, had oil showing in Squirrel sand at 657-67 ft., and the crew was underreaming 8-in. casing at 643 ft. Elevation is 813.6 ft. This operator spudded his No. 1 Ice, SW SE SE Section 9-14-19, in the same county. A Douglas County failure was recorded in Section 20-13-20.

Ladd & Vincent were rigging up to spud at No. 1 Achten, SE NW Section 12-4s-14e, Nemaha County. This test previously was described as Bumpas & Hibbard's No. 1 Achton. Operations in Johnson County included F. J. Kasper, trustee's No. 2 Hammer, NW cor. Section 33-13-22; Sagamore Oil & Gas Co. and Kasper's No. 1 Keegan, C SW NW Section 3-14-22; H. C. H. Corp.'s No. 2 Bross, NW SE Section 4-12-24, and Hammel and others' No. 1 Gorman, NE SE Section 4-12-24.

C. L. Carlock and Jones Brothers' No. 1 Mahoney, S½ SW SW Section 8-14-12w, discovery well southeast of the Bunker Hill pool, Russell County, was due to test after acidizing with 3,000 gal. It had Lansing lime at 2,943-80 ft., was acidized with 1,000 gal. and swabbed 34 bbl. of oil in 2 hours. It was reacidized with 3,000 gal.

Estimated Daily Production

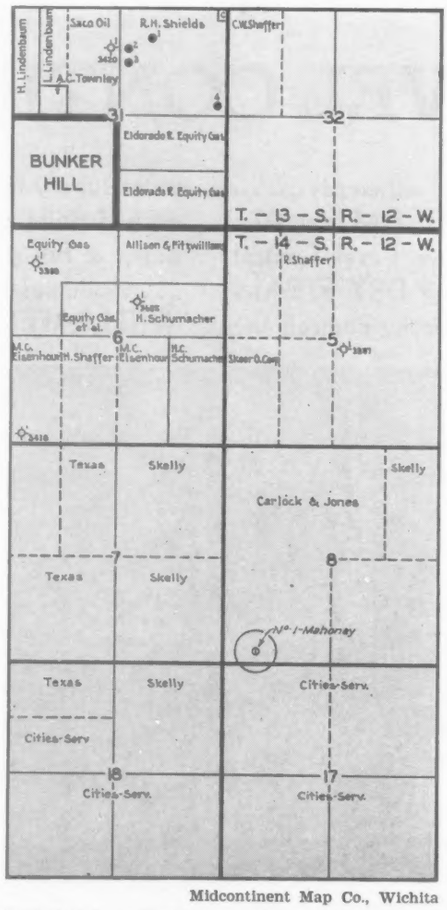
Estimated daily production for Kansas for the week ended July 6, and for the preceding week, was as follows:

	Barrels	
	July 6	June 29
Oxford City	700	750
Burrton	7,800	7,850
Ritz-Canton	3,650	3,600
Graber	2,150	2,350
Hollow-Nikkel	1,400	1,400
Lerado	450	500
Voshell	1,600	1,600
Wellington	1,700	1,730
Ellsworth County:		
Lorraine	1,300	1,950
Other pools	3,265	3,425
Rice-Barton counties:		
Bloomer	4,200	3,950
Chase	4,500	4,500
Geneseo	2,500	2,550
Raymond	650	600
Silica	10,000	11,300
Keesling	1,300	700
Wherry	3,050	3,050
Miscellaneous Rice	4,240	3,955
Miscellaneous Barton	8,695	9,270
Trapp district	12,650	13,100
Balance Russell County	19,850	19,350
Sedgwick County	3,250	3,250
Ellis County:		
Bemis	10,050	9,600
Miscellaneous	10,175	10,650
Kingman County	540	365
Stafford County	11,885	11,200
Greenwood County	8,200	8,150
Eldorado	7,350	7,400
Other fields	35,350	34,685
Total Kansas	182,450	183,100

Among the Wildcats

A new producing area was opened in southeastern Russell County at Haynes & Anschutz's No. 1 Driscoll, N½ SE SW Section 30-15-11w, about 3 miles east of the Dubuque pool and a similar distance northwest of the Davidson pool in Barton County. It topped Sooy formation at 3,310 ft., total depth 3,323 ft., pumped 215 bbl. of 37.2-gravity oil in 8 hours and made daily potential of 646 bbl. Lansing lime was topped at 3,020 ft. Seven-inch casing was set at 2,944 ft.

Ed Ashlock and associates opened a productive spot in the Quincy-Gilroy area of Greenwood County at



Midcontinent Map Co., Wichita

Carlock & Jones Brothers opened a Lansing lime pool in Section 8-14-12w, south of the Bunker Hill pool, Russell County. The crew was due to test after acidizing with 1,000 and 3,000 gal.

No. 2-A Lindemood, NE NW SW Section 7-25-13. Mississippi lime was topped at 1,600 ft., pay was found at 1,613-20 ft., total depth, and it pumped 12 bbl. of oil and 20 bbl. of water daily.

Other wildcat completions of the past week failed to find production. The failures included: Kerlyn Oil Co.'s No. 1 Whedon, NE NE Section 20-13-20, Douglas County, abandoned with a hole full of water at 719 ft.; Westgate-Greenland Oil Co.'s No. 1 Lassen, S½ NW SE Section 24-17-2w, McPherson County, Mississippi lime 2,818 ft., abandoned at 2,859 ft.; Progressive Oil Co.'s No. 1 Chavez, W½ SW NW Section 26-20-2w, McPherson County, Mississippi zone 2,973 ft., abandoned at 3,025 ft.; Palmer Oil Corp.'s No. 1 Stratman, E½ NE SW Section 15-17-10w, Ellsworth County, Arbuckle lime 3,354-75 ft., total depth, abandoned; H. & M. Drilling Co.'s No. 1 Swenson, S½ SW NE Section 9-18-4w, McPherson County, Viola lime 3,505 ft., total depth 3,615 ft., hole full of water, abandoned; I. W. Murfin and others' No. 1 Jarvis, N½ SW NE Section 19-31-5, Cowley County, Arbuckle lime 3,373 ft., hole full of water at 3,376 ft., total depth, abandoned; Markey & Mission Oil Co.'s No. 1-A Hunt, SW SW NE Section 16-34-5, Cowley County, Mississippi zone 3,136-3,265 ft., total depth, abandoned.

New wildcats included Vern McDaniel's No. 1 Eckel, NW NE NW Section 7-27-7, north of the Knox pool, Butler County, location on subsurface geology, rigging up machine; Herndon Drilling Co. and others' No. 1 Montgomery, E½ E½ SW Section 13-27-13w, about 2 miles southeast of the Iuka pool, Pratt County, location on subsurface geology, rigging up rotary; McLaughlin and others' No. 1 Frazier, SW NE Section 22-9-18, subsurface geology, about 5 miles northwest of Oskaloosa, Jefferson County, moving in machine.

COMPLETIONS IN KANSAS

McPherson County

Bornholdt field: Moulton and others' No. 1 Briggs, W½ SW SW Section 20-20-5w, chat 3,340-92 ft., pumped and flowed 992 bbl. Ohio Oil Co.'s No. 2 Lindquist, E½ NE SE Section 19-20-5w, chat 3,339-80 ft., potential 1,244 bbl., calculated; same company's No. 2 Peterson, E½ NW SW Section 29-20-5w, chat 3,376-90 ft., total depth 3,403 ft., potential 113 bbl. Sunray Oil Co.'s No. 4 Lindquist, E½ SE NW Section 29-20-5w, chat 3,379-82 ft., flowed 234 bbl. in 2 hours, potential 3,000 bbl., maximum allowable. Central Petroleum Co.'s No. 2 Swanson, S½ SW NW Section 18-20-5w, chat 3,295-3,359 ft., potential 57 bbl.

Roxbury pool: E. B. Shawver's No. 6 Union, W½ NW SE Section 18-17-1w, chat 2,632-54 ft., pumped 625 bbl. in 8 hours, potential 1,877 bbl.

Rice County

Bloomer field: Mission Oil Corp.'s No. 11 Habiger, E½ NE NW Section 5-18-10w, Arbuckle 3,226-34 ft., pumped 304 bbl. in 16 hours, potential 2,129 bbl., calculated.

Raymond field: Sinclair Prairie Oil Co.'s No. 5 Specht, W½ NE SE Section 20-20-10w, Arbuckle 3,292-3,300 ft., pumped 119 bbl. in 8 hours, potential 358 bbl.

Silica field: Frank Hopper and others' No. 1 Flora, S½ SW SW Section 26-19-10w, total depth 3,330 ft., dry and abandoned.

Wherry field: Eldorado Refining Co.'s No. 2 Oden, S½ SE NW Section 6-21-7w, Sooy 3,303-38 ft., pumped 100 bbl. in 8 hours, potential 302 bbl.

Lyons field: M. B. Blake's No. 1 Schmidt, W½ SE SE Section 35-19-8w, Arbuckle 3,275-3,305 ft., gaged 8,300,000 cu. ft. of gas.

Russell County

Gurney field: Hartman & Blair's No. 4-A Gurney, E½ NW NW Section 23-14-14w, Lansing 2,982-3,014 ft., pumped 44 bbl. in 2 hours, estimated 1,200 bbl. daily. Cities Service Oil Co.'s No. 3 Ebel, S½ SW SE Section 24-14-14w, Lansing 2,899-2,928 ft., acidized, pumped 438 bbl. in 8 hours, potential 1,315 bbl.

Trapp field: Shell Oil Co., Inc.'s No. 12 Dumler, NW NW SW Section 36-15-14w, Arbuckle 3,329-35 ft., swabbed 319 bbl. in 5 hours, potential 3,000 bbl., maximum. Cities Service Oil Co.'s No. 4-A Tittle, E½ NE SW Section 12-15-14w, total depth 3,341 ft., dry and abandoned. Stanolind Oil & Gas Co.'s No. 10 Roesner, S½ SW SE Section 9-15-13w, Lansing 3,024-83 ft., total depth 3,350 ft., pumped 311 bbl. of oil, with 10 per cent water, in 18 hours, potential 933 bbl.

North Fairfield pool: Earl Wakefield's No. 2 Meharg, NW SE SE Section 16-15-13w, Arbuckle 3,336-37 ft., pumped 50 bbl. in 3 hours, potential 152 bbl.

Ellis County

Burnett field: Darby Petroleum Corp.'s No. 4-B Hadley, S½ SE NW Section 13-11-18w, Arbuckle 3,359-68 ft., maximum potential 3,000 bbl., calculated.

Bemis-Shutts field: Amerada Petroleum Corp.'s No. 2 Hadley, W½ NW SE Section 31-11-17w, Arbuckle 3,657-63 ft., swabbed 194 bbl. in 6½ hours, potential calculated at 1,197 bbl.

Ellsworth County

Stoltenberg field: Beardmore Drilling Co.'s No. 2 Talsky, E½ NE NE Section 8-16-10w, Arbuckle 3,244-57 ft., maximum potential 3,000 bbl., calculated.

Bloomer field: Magnolia Petroleum Co.'s No. 3 Zink,

S½ NE SW Section 33-17-10w, Arbuckle 3,216-22 ft., potential 1,678 bbl., calculated.

Greenwood-Butler-Cowley

Severy field, Greenwood County: Lewis & Allen's No. 2 Gladson, SW NW NE Section 17-28-11, Kansas City 1,203-06 and 1,216-23 ft., pumped 25 bbl. of oil and 25 bbl. of water. Robinson's No. 1 Hilyard, SE NE NW Section 17-28-11, Kansas City 1,113-14 and 1,205-24 ft., pumped 30 bbl. of oil and 15 bbl. water.

Guenther field, Butler County: Carlock and others' No. 1 Hadley, NE NE SE Section 30-26-7, dry and abandoned at 2,805 ft.

Frog Hollow field, Cowley County: Hawkeye Oil Co.'s No. 2 Moon, NE SW NW Section 21-32-5, Bartlesville 3,066-89 ft., flowed 638 bbl. in 8 hours, potential 2,049 bbl.

Stafford County

Zenith field: Stanolind Oil & Gas Co.'s No. 7 McComb, S½ NW NW Section 12-24-11w, Misener-Viola 3,719-67 ft., pumped 150 bbl. of oil and 10 bbl. of water in 8 hours, potential 450 bbl. Same company's No. 5 McComb, W½ NW SW Section 14-24-11w, Misener-Viola 3,786-3,822 ft., pumped 107 bbl. in 8 hours, potential 323 bbl. Thrall & Hannum Drilling Co.'s No. 1 McComb, S½ SE NE Section 22-24-11w, dry and abandoned at 3,853 ft.

Miscellaneous Fields

Ness County, Aldrich field: Continental Oil Co.'s No. 2 Shiner, SW SW SE Section 13-18-26w, Mississippi 4,435-53 ft., pumped 237 bbl. in 8 hours, potential 712 bbl.

Rooks County, Laton field: Broadview Oil Co.'s No. 2 Livingston, N½ SE NW Section 11-9-16w, Lansing 3,204-60 ft., pumped 178 bbl. in 8 hours, potential 535 bbl.

Marion County, Lost Springs field: Herrington and others' No. 1 Deines, NE cor. Section 29-17-4, Mississippi 2,365-99 ft., pumped 40 bbl. of oil and 120 bbl. of water.

Pratt County, Cunningham field: Skelly Oil Co.'s No. 4 Moore, E½ SE SW Section 25-27-11w, Lansing 3,465-80 ft., total depth 3,484 ft., flowed 180 bbl. in 8 hours, potential 541 bbl.

First Reports

Ellis County: Ryan Consolidated Oil Corp.'s No. 7-A Bemis, CSL N½ NW Section 22-11-17w, rotary rig; Same company's No. 7-B Bemis, CNL S½ NW Section 22-11-17w, location; Lario Oil & Gas Co.'s No. 8 Marshall, E½ NE SW Section 31-11-17w, rotary rig; Bay Petroleum Co.'s No. 4-A Riddle, N½ SE NE Section 12-11-18w, set 13-in. casing at 80 ft.; Shell Oil Co., Inc.'s No. 2-A Riddler, NW SW NW Section 12-11-18w, pits; Darby Petroleum Corp.'s No. 4-A Peavey, S½ NE SW Section 13-11-18w, surface hole.

Russell County: Shell Oil Co., Inc.'s No. 5-A Batt, NE NE SE Section 35-15-14w, pits; Texon Oil Co.'s No. 4 Hall, C SE Section 26-14-13w, building rotary rig; Skelly Oil Co.'s No. 4 Rein, N½ SW SW Section 25-14-14w, rigging up rotary.

Ellsworth County: Stanolind Oil & Gas Co.'s No. 1 Stoltenberg, E½ SE NW Section 21-16-10w, surface hole; Lario Oil & Gas Co.'s No. 3 Mehl, N½ SE SE Section 35-16-10w, set 8-in. casing at 255 ft., waiting.

McPherson County: Northwestern Production Co.'s No. 1-B Whittall, W½ NE NE Section 29-19-1w, set 12-in. casing at 1,505 ft.; Central Petroleum Co. and others' No. 3-B Swanson, W½ SE NW Section 18-20-5w, rigging up rotary; Hartman & Pem Drilling Co.'s No. 2 Swanson, N½ SW SW Section 18-20-5w, rigging up rotary; W. H. Moulton and others' No. 3 Briggs, W½ NW SW Section 20-20-5w, cellar.

Stafford County: Stanolind Oil & Gas Co.'s No. 1 Richardson, E½ NE NW Section 10-24-11w, building rotary rig; same company's No. 6 Hitz, E½ SE NW Section 2-22-12w, rotary rig.

Greenwood County: Leon & Shewmaker's No. 1 Lee, SE SE NW Section 17-28-11, running 8-in. pipe to 500 ft.; D. Robinson's No. 1 Roberts, NE SE NW Section 17-28-11, machine; Barbara Oil Co.'s No. 8 Schneider, NW NW SW Section 10-23-13, old well, rigging up to deepen.

Miscellaneous: E. B. Shawver's No. 2-A Bahruth, NE SE NE Section 8-34-3e, Cowley County, drilling below 1,540 ft. Aladdin Petroleum Co.'s No. 3-A Furman, W½ SW SE SW Section 8-23-4, Butler County, location. Same company's No. 3 Rempel, SW SE SE Section 12-19-2e, Marion County, location. United Production Co.'s No. 1 Harper, SE SE NW Section 32-29-34w, Haskell County, drilling below 1,120 ft. Same company's No. 1 Rooney, SE SE NW Section 5-30-34w, Haskell County, location. Panhandle Eastern Pipe Line Co.'s No. 1 McClaren, C SE Section 15-29-36w, Grant County, rotary rig.

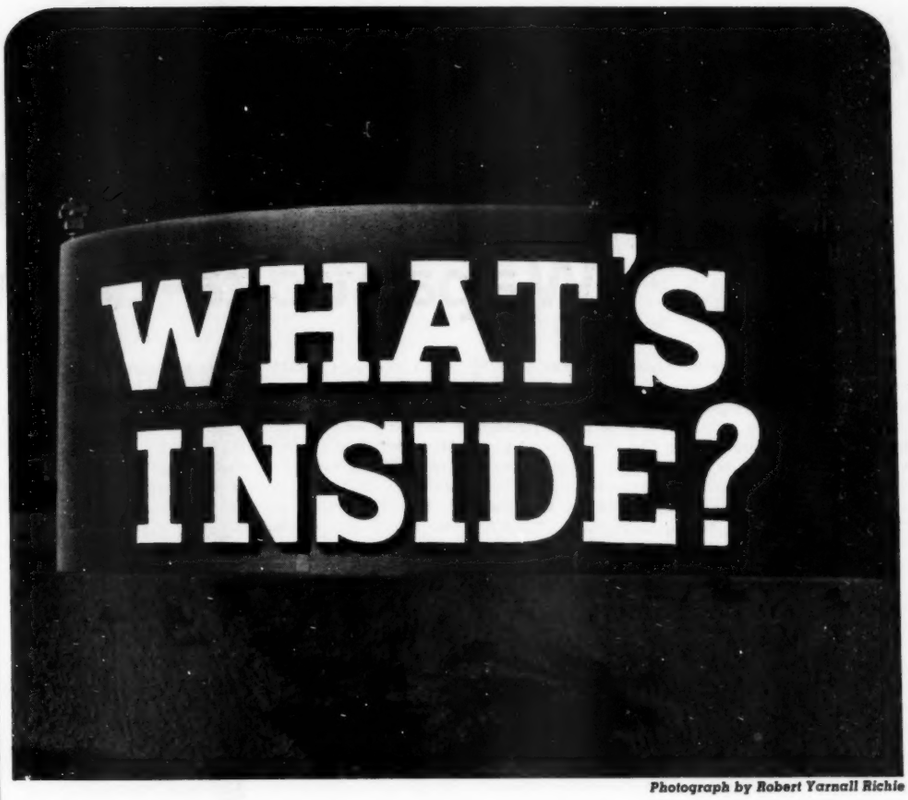
Forest City Basin

ST. JOSEPH, Mo., July 8.—Three Richardson County, Nebraska, starts were made this week and at a fourth location cellar was being dug. Ten miles west of the Falls City pool, in the Salem area, Uhri Oil Co.'s No. 1 Ogle, NE NW SE SE Section 9-1n-14e, swabbed 150 bbl. of oil in 24 hours. Operators were expected to acidize. Total depth is reported to be 2,259 ft., presumably about 1 ft. in the Hunton lime.

In the Falls City area, Pawnee Royalty Co. spudded its No. 1 Zentner, C NE SE Section 8-1n-16e, 1 mile northeast of the No. 1 Boice discovery. It also spudded its No. 1 Keim-Workman, C NE SE Section 18-1n-16e, west offset to the company's No. 1 Bucholz. At noon today the No. 1 Bucholz had completed its forty-first day of the 60-day bonus test. Nebraska will pay $15,000 when the well has produced a daily minimum of 50 bbl. for 60 consecutive days. This week the well was allowed to flow at full strength for 24 hours and flowed exactly 332¾ bbl. in that time.

One mile northwest of Salem, Richardson County, Campbell & Sparks spudded their No. 1 Horton, C NE

(Continued on Page 89)



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A DIVISION OF GENERAL AMERICAN TRANSPORTATION CORPORATION

Oklahoma Operations

By
DAL DALRYMPLE

Seminole Outpost Finds Oil in Wapanucka-Cromwell Pays

Although a once-promising wildcat in Logan County found water where oil was expected, the failure was partly offset by the opening of a gas field in the same county and discovery of a new oil area in the Greater Seminole district. Elsewhere in Oklahoma several new wildcats were started as deep tests in Caddo, Dewey and Marshall counties were abandoned.

Mid-Continent Petroleum Corp. found the new pool in Seminole County at its No. 1 Ferguson, NE SW SW Section 18-7-8, about ¾ mile northwest of the Fish field. With the hole bottomed at 3,475 ft. and packer set at 3,418 ft., it flowed from 12 to 15 bbl. of oil an hour on drill-stem test, producing from Wapanucka and Cromwell horizons. Gas was estimated at 2,000,000 to 3,000,000 cu. ft. Sandy Wapanucka lime was topped at 3,418 ft., Cromwell sand at 3,443 ft. Gilcrease sand found at 3,190 ft. had good porosity and carried saturation but was passed up as operators sought production in the lower zones. Location is on a seismograph high in a regional low. While only ¾ mile from Fish production and ½ mile west and ¼ mile south of an area recently opened by Winona Oil Co.'s No. 1 Jackson, SW SE NE Section 18-7-8, where Wilcox sand production was uncovered, the No. 1 Ferguson is said to be on an independent structure. The discovery was shut in to run 8-in. casing and erect tanks.

A gas area was opened at H-P Gas Co.'s No. 1 Matherson, SW cor. Section 34-18-4w, south of the Lovell field in western Logan County. It drilled Layton series at 4,804-64 ft., total depth, and production was estimated 12,500,000 cu. ft. of dry gas daily. The well was shut in for connections.

Eason Oil Co. and others' No. 1 Wells, NE NW NE Section 15-16-2w, on east edge of Guthrie in Logan County, which had given promise of opening a pool, found water in first Wilcox sand at 5,819-37 ft., and second Wilcox sand at 5,895-5,920 ft., total depth, was white and salty. It was scheduled for abandonment.

New Operations

Paul Williams and associates' No. 1 Allison, NW SW NW Section 30-18-2e, is location for a wildcat about 2 miles south of the Ramsey pool in Payne County. It is south of dry holes completed on the south edge of the pool. Nearest dry hole was Blackwell Oil & Gas Co.'s test in SE cor. Section 24-18-1e.

Vierson Oil & Gas Co.'s No. 1 Bell, SW SW NE Section 5-14-5, outpost about 1 mile west of the Davenport pool, Lincoln County, had erected derrick. Russell and others' No. 1 Laughlin, SW SW SE Section 35-16-5, wildcat about 2 miles northwest of the Skellyville pool, Lincoln County, was drilling below 2,810 ft. Moss' No. 1 Gist, S½ SE NE Section 27-10-6, north of the Searight pool, Seminole County, was rigging up rotary. Ramsey Petroleum Co.'s No. 1 McFarland, NE NE SE Section 2-4-7, outpost in the North Steedman area, Pontotoc County, was a rotary rig. Metzger & Foltz's No. 1 Springer, SE SE NW Section 12-13-17, was rigging up machine for a wildcat test about 3 miles northeast of Oktaha, Muskogee County.

Other new work included the following: Campbell's No. 1 Dillard, C NE NW Section 25-3-11, Coal County, drilling below 850 ft.; Patsy Oil Co.'s No. 2 James, NE NE NE Section 16-5-3e, old well in the Byars pool, McClain County, deepening from 3,600 ft., drilling below 3,775 ft.; Senora Oil & Gas Co.'s No. 1 Summers, SE NE SW Section 26-5-4, Pontotoc County, rig; Huddleston's No. 1 Patterson, NE SE SW Section 20-5-8, Pontotoc County, had sand at 932-34 ft., running 5-in. casing; Vierson Oil & Gas Co.'s No. 1 Masters, NE SE SE Section 27-6-4, Pottawatomie County, drilling below 545 ft.; Titus' No. 1 Jackson, C NW NW Section 25-11-8, Okfuskee County, spudded; Martin's No. 1 well, NE SE NE Section 8-14-10, Creek County, location; Wright's No. 28 Meyer, SW SW NW Section 24-17-10, Creek County, drilling below 665 ft.; Kemp's No. 1 Newsum, SW NW SE Section 26-17-6, Lincoln County, spudded; Critchlow's No. 8 Adair, NW SW NW Section 27-3n-5w, Grady County, rigging up rotary tools; George Pace's No. 2 Wray, SE SW NE Section 6-5n-9w, Cement field, Caddo County, building rig; Ohio Oil Co.'s No. 7 Lackey, NE SW NW Section 11-5-9w, Cement field, cellar and pits; Gulf Oil Corp.'s No. 6 Barrett, NE SE SW Section 10-1n-20w, Jackson County, drilling below 120 ft.

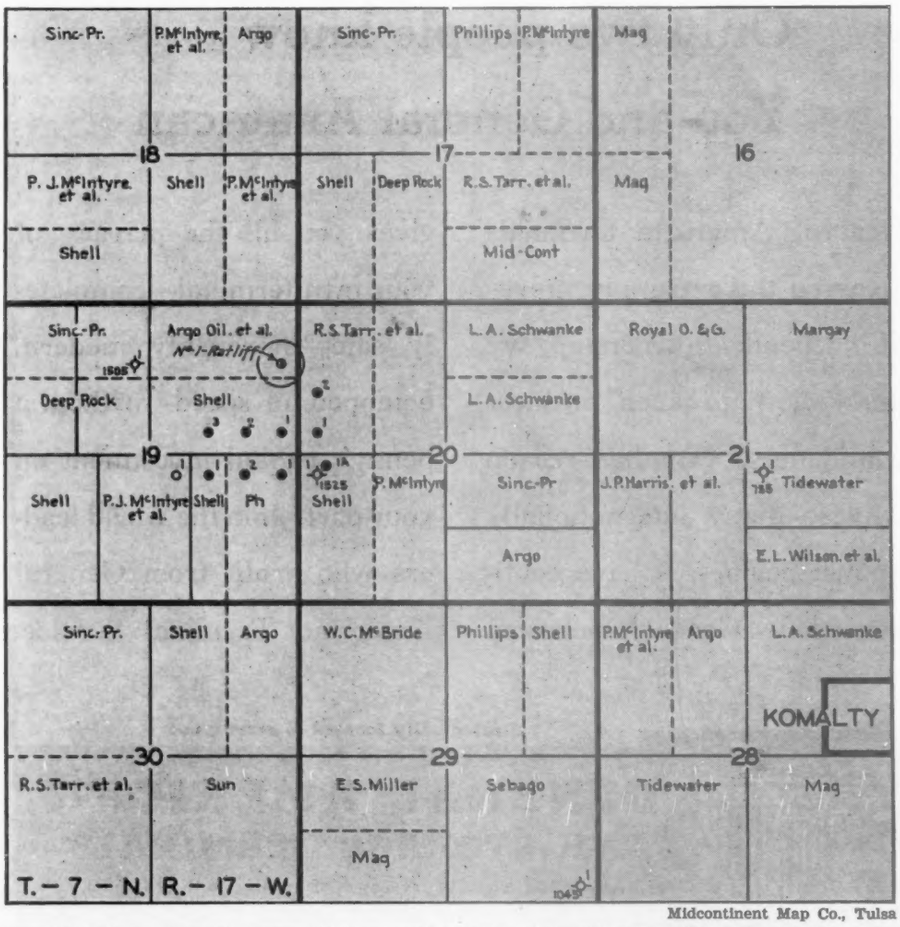
Wildcat Operations

Johnson-Kemnitz Drilling Co. and others' No. 1 Neff-Godfrey, SW SE NE Section 14-6s-6e, southwest of the Cumberland pool, Marshall County, was plugged and abandoned at 5,890 ft., total depth. Arbuckle lime was topped at 5,745 ft. Showings of oil were found in Simpson formation but efforts to develop commercial production by acidizing, swabbing, and other methods were unsuccessful.

Sinclair Prairie Oil Co.'s No. 1 German, SW NW NW Section 1-6-13w, west of the Cement field, southern Caddo County, found Arbuckle lime at 10,922 ft. and was bottomed at 11,026 ft. It was plugged back to 2,450 ft., acidized in Pontotoc formation at 2,030-2,450 ft., without result, and was abandoned.

Another deep wildcat in western Oklahoma was given up as a failure at Magnolia Petroleum Co.'s No. 1 Fiekes, C SW SW Section 31-18-14w, Dewey County. It had Chester formation at 8,970 ft., total depth 9,475 ft., had drill pipe stuck at 8,400 ft., efforts to free it were unavailing and the wildcat was abandoned.

Troup, Moore & Dennis' No. 1 Bowie, NW NE SE Section 3-4-3e, Garvin County, had Viola lime at 2,792 ft., Trenton lime at 2,875 ft., and was dry and abandoned at 3,363 ft. in dolomite. C. E. Davis' No. 1 Keyes, NE NE SE Section 4-11-8, Seminole County, had Hunton lime at 4,164 ft., and was dry and abandoned at 4,243 ft. Anderson-Prichard Oil Corp.'s No. 1 Smith, SE SW NE Section 18-15-5, Lincoln County, was bottomed in second Wilcox sand at 4,514-30 ft., gas found at 3,542 ft. originally gaged 5,660,000 cu. ft., decreased to 1,000,000 cu. ft. and the well was abandoned. Alma Oil Co.'s No. 1 Gosting, SE SE SE Section 14-27-2e, Kay County, had Arbuckle lime at 4,050 ft., and was abandoned at 4,062 ft. William Curtiss' No. 1-A Hobbs, SE SE NW Section 35-6-17w, Kiowa County.



Midcontinent Map Co., Tulsa

Argo Oil Co.'s No. 1 Ratliff, Section 19-7-17w, north extension of the Hobart pool, Kiowa County, had a gas blowout at 917 ft. in lime and yield was estimated at 15,000,000 cu. ft. of sweet gas daily. A good spray of oil was reported with the gas but there was no estimate of amount. Gas was killed, 8-in. casing was set at 916 ft., and plug was being drilled

topped lime at 567 ft., and was abandoned at 620 ft. Jackson's No. 1 Marshall, SE NE NE Section 1-1s-6w, Stephens County, was abandoned at 2,575 ft., in shale.

E. O. Platter's No. 1 Osage, SE SE NE Section 29-22-9e, outpost in the East Hominy area, Osage County, was completed at 1,811 ft., total depth, was acidized, flowed 160 bbl. of oil the first 24 hours, and averaged 130 bbl. daily, the next 4 days.

Estimated Daily Production

Estimated daily production in Oklahoma for the week ended July 6, and for the preceding week, was as follows:

	Barrels	
	July 6	June 29
Allen	5,350	5,325
Billings	6,025	6,150
Burbank	7,100	7,125
South Burbank	8,200	8,275
Balance Osage	17,250	17,450
Blackwell district	3,500	3,575
Bristow-Slick	5,750	5,900
Chandler	1,025	1,050
Crescent	2,275	2,250
Cromwell	2,925	2,950
Cushing-Shamrock	9,125	9,200
Duncan	3,750	3,700
Edmond	4,100	4,150
Fish	3,100	3,100
Fitts	17,250	16,600
Jesse	2,100	2,125
Graham-Fox	2,450	2,300
Gray	750	725
Healdton	8,850	8,800
Hewitt	3,850	3,850
Keokuk	3,125	3,150
Konawa	1,100	1,100
Lucien	7,900	7,925
Moore	1,750	1,800
Northeastern counties	17,000	17,250
Oklahoma City	105,750	102,150
Olympic	2,125	2,100
Ramsey	3,800	3,800
Sasakwa	1,475	1,450
Sholem-Alechem	2,825	2,850
Seminole district:		
Bowlegs	6,825	6,850
Carr City	2,350	2,350
Dora	2,400	2,350
Earlsboro	4,175	4,150
East Earlsboro	1,850	1,900
South Earlsboro	550	550
Little River	6,750	6,750
East Little River	700	700
Maud	550	575
Mission	1,300	1,325
Seminole	7,100	7,150
East Seminole	1,300	1,350
Searight	2,100	2,150
Total Seminole	37,950	38,150
St. Louis-Pearson	27,600	27,750
Tatums-Tussy	2,050	2,100
Tonkawa-Garber-Thomas	3,875	3,925
Wewoka	1,525	1,750
Yale-Jennings	3,250	3,400
Other pools	80,450	81,550
Total Oklahoma	418,275	416,775

Completions in Pools

Pontotoc County: Senora Oil & Gas Co.'s No. 2 Summers, NW SW SW Section 25-5-4, Bebee pool, Viola lime 2,471 ft., total depth 2,580 ft., shot at 2,540-60 ft., pumped 100 bbl. of oil daily. Patterson's No. 1 Norvell, NW NW NW Section 35-5-4, had dolomite at 2,589 ft., total depth 2,637 ft., perforated and acidized at 2,292-2,316 ft., pumped 35 bbl. of oil. Texas Pacific Coal & Oil Co.'s No. 5 Hatcher, NE SE NW Section 30-5-5, Viola lime at 2,373 ft., total depth 2,521 ft., shot at 2,502-17 ft., pumped 60 bbl. of oil and 60 bbl. of water.

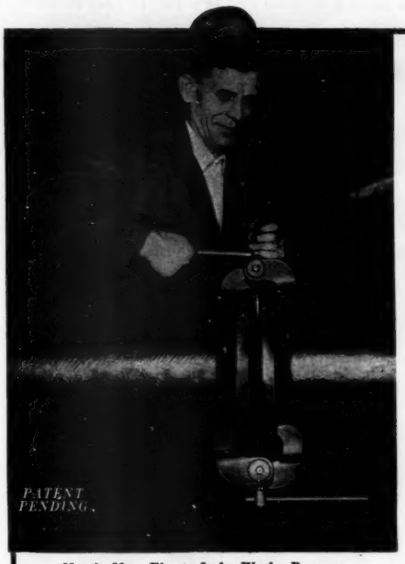
Pottawatomie County: Osborn's No. 1 Barkus, NW NW NE Section 10-5-5, South Konawa pool, pumped 5 bbl. of oil daily from Hunton lime topped at 2,438 ft., total depth 2,695 ft.

Lincoln County: Allied Co.'s No. 1 School land, NW NW SE Section 16-13-6, south edge of South Laffoon area, had Hunton lime at 4,020-52 ft., total depth, acidized, gaged 14,000,000 cu. ft. of gas, with 1,235 lb. rock pressure. Summit Drilling Co.'s No. 2 Cleer, SE NE SW Section 6-15-5, Prue zone at 3,561 ft., dry and abandoned at 3,668 ft.

Okfuskee County: Wells' No. 1 Fletcher, SE SW SE Section 24-10-11, Weleetka area, sand 1,997 ft., total depth 2,021 ft., shot, pumped 9 bbl. of oil.

Haskell County: Utilities Gas Co.'s No. 1 Anderson, C SE SE Section 23-8-20, Kinta field, sand 865-67 ft., total depth, gaged 335,000 cu. ft. of gas, with 205 lb. rock pressure.

Creek County: Glenn's No. 2 McMillan, SE NW NW Section 26-18-7, old well deepened from 575 ft. to 1,945 ft., gaged 2,000,000 cu. ft. of gas. Big Four Petroleum Co.'s No. 4 Copeland, SW SW NW Section 24-19-7, Bartlesville sand 2,760-2,808 ft., dry and abandoned. W. A. Vierson's No. 1 Scott, NW NE SW Section 24-14-10, Wilcox sand 3,207 ft., total depth 3,225 ft., plugged back to 3,216 ft., shot, pumped 21 bbl. of 36-gravity oil and 50 bbl. of water. Jeff Archer's No. 1-A King, W½ SE Section 22-17-11, total depth 2,508 ft., pumped 60 bbl. of oil. Giblin's No. 1-A Reed, NE SW SW Section 30-18-10, abandoned at 2,314 ft. Abe Peppis' No.



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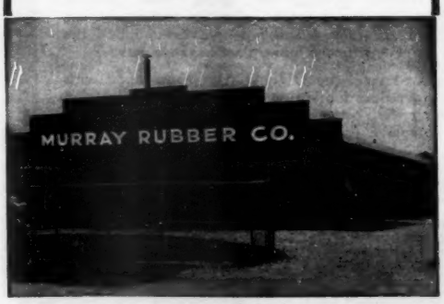

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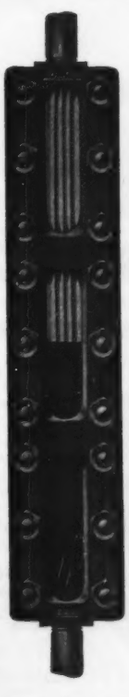

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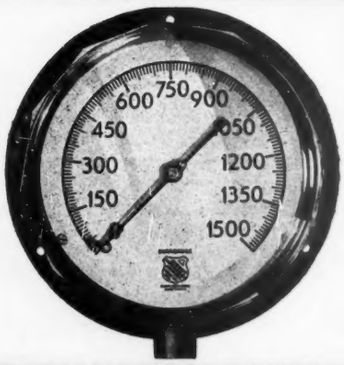

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4-A Job land, NE SE NW Section 12-18-11, total depth 1,445 ft., pumped 8 bbl. of oil.

Small Gas Wells

Wagoner County: Sewell & Hanson's No. 1 Walker, NE NW NE SE Section 21-19-16, total depth 525 ft., gaged 250,000 cu. ft. of gas. Same operators' No. 2 Walker, NE NE NE SE Section 21-19-16, total depth 510 ft., gaged 250,000 cu. ft. of gas. Geneva Hooper's No. 2-A Vernon, W½ W½ NW SE Section 23-18-16, total depth 400 ft., pumped 3 bbl. of oil. Finefield and others' No. 1 Kane, SW SW SE Section 33-18-18, abandoned at 400 ft.

Tulsa County: Gail Oil Co.'s No. 7 Daugherty, SW NW NE SW Section 35-20-13, pumped 3 bbl. of oil at total depth of 1,065 ft. W. C. Norris and others' No. 1 Phillips, W½ NW NW NW Section 23-21-12, abandoned at 521 ft. Frank Bev and Tolliver's No. 1 Keith, E½ W½ NE SE Section 32-22-14, abandoned at 521 ft.

Okmulgee County: E. M. Jordan's No. 2-A Walker, NE SW NE Section 1-13-11, pumped 10 bbl. of oil, total depth 2,046 ft. J. R. Allen's No. 1 Chronos, NW NE NW Section 25-14-12, total depth 2,021 ft., pumped 25 bbl. of oil. W. W. Wilson's No. 2-A Schacht, C SW SE Section 22-14-14, abandoned at 1,790 ft. M. Kirkland's No. 4 Green, CSL NE NE Section 24-15-12, total depth 1,634 ft., pumped 15 bbl. of oil.

Pawnee County: Ross' No. 1 Sublet, NW SW NW Section 21-20-7, abandoned at 657 ft., lost hole. Greer's No. 1-A Ruble, NE NW NW Section 7-20-8, abandoned at 440 ft. Johnson's No. 2 Hubbard, C NW NW Section 21-20-9, abandoned in Mississippi lime at 2,520-47 ft., total depth.

Oklahoma County: Phillips Petroleum Co.'s No. 2 Ellison, NE NE SW Section 27-12-3w, Oklahoma City field, Wilcox sand 6,423 ft., set 7-in. casing 6,403 ft., total depth 6,590 ft., shot 6,534-90 ft., pumped 1,074 bbl. of oil daily. Indian Territory Illuminating Oil Co.'s No. 27 Trosper, SE SW SW Section 12-11-3w, old well deepened from 6,390 ft. to 6,855 ft., dry and abandoned.

Southwestern Operations

Caddo County: Ohio Oil Co.'s No. 8 Lackey, SW SE NW Section 11-5-9w, Cement field, total depth 3,360 ft., perforated casing at 3,291-3,315 ft., flowed 92 bbl. of oil in 4 hours, potential 554 bbl.

Grady County: T. H. McCasland's No. 1-B Horton, NW SE NW Section 8-3-5w, Knox pool, sand 2,620 ft.,

(Continued on Page 100)

West Texas Fields

(Continued from Page 75)

1,219-29 ft., total depth. Tubing is scheduled to be run if the 5-in. swedge is successful in straightening the hole.

Novice Field

Two new wells were tested for completion in Colemon County's increasingly active Novice field. Robert McKissick, 3 J. P. Morris, 3,107 ft. from the east and 467 ft. from the south lines of Block 2, G.H.&H. Survey 176, gaged 163 bbl. of oil on 24-hour test from pay drilled from 3,535-69 ft. in the Gardner sand.

States Oil Corp., 1 Jack Coker, J. L. Taylor, Survey 117, made 163 bbl. of oil daily from the Gardner sand at 3,587 ft. It is located 467 ft. from the north and west lines of the survey.

New Tests

A shallow wildcat was spudded last week in Shackelford County. It was J. Morgan Russell, 1 Lulu B. Gray, northwest part of Block 113, University Lands Survey, 1½ miles southwest of Moran. The test will seek production in the Hope sand at approximately 500 ft.

E. J. Farrell and associates, West Central Texas operators, are assembling a 2,000-acre block in Brown County and north of the town of Blanket for a proposed 800-ft. test of the Strawn section. The block begins at the city limits of Blanket and the test is expected to be started within 30 days.

WEST CENTRAL TEXAS COMPLETIONS

(24-hour gages)

Callahan County

Putnam field: Valley Osage, 8 Slaughter, dry at 390 ft. Wildcat: A. L. Thomas, 2 Abrams, Sec. 1, B.B.B.&C. Survey, dry at 456 ft.

Coryell County

Wildcat: Kistler Oil & Gas, 1 Barnes, H. Farley Survey, dry at 1,502 ft.

Eastland County

Carbon field: Dobbs, 1 Thompson, 243 bbl., 2,575-2,633 ft.

Jones County

Wildcat: George Callihan, 1 Steele, Sec. 11, Blk. 15, T.&P. Survey, dry at 2,502 ft.
Akard field: Hedrick, No. 4 Akard, 73 bbl., 2,127-31 ft.

Runnels County

Beddo field: Davis, 1 Huddleston, 93 bbl. oil and 65 bbl. water 3,350-60 and 3,543-77 ft. (O.W.D.D.).

Shackelford County

Ghio field: Georgian, 18 Blach, 5 bbl., 524-32 ft.
Sedwick field: R. H. Roark, 8 Hickman, 70 bbl., 659-70 ft.
Cook field: Roeser-Pendleton, 12-B-113 Cook, 284 bbl., 1,569-91 ft.

Stephens County

Fagg field: Panhandle Refg., 1 Magers, dry at 4,027 ft.

Taylor County

Wildcat: Yehudi Oil, 1 Bettis, R. Ortiz Survey 19, dry at 2,667 ft.

WEST TEXAS COMPLETIONS

(24-hour gages)

Andrews County

Means field: Humble, 25 R. M. Means, 632 bbl., 4,500-80 ft.
Emma field: Skelly, 2-F University, 675 bbl., 4,240-4,317 ft.

Crane County

Dunes field: Shell, No. 5-B University, 681 bbl., 3,315-3,640 ft.
Wasomes, 2-6 University, 116 bbl., 3,190-3,313 ft.
Waddell field: Gulf, 22 Henderson, 1,024 bbl., 3,548-50 ft.

Ector County

Johnson field: Atlantic, 6-C Johnson, 856 bbl., 4,060-4,210 ft.
Barnsdall, 4 Witcher, 729 bbl., 4,025-4,200 ft.
M. J. Delaney, 1-B Johnson, 498 bbl., 4,047-92 ft.
Goldsmith field: Gulf, 292 Goldsmith, 1,394 bbl., 4,191-4,250 ft.
Gulf, 293 Goldsmith, 1,204 bbl., 4,182-4,252 ft.
Gulf, 294 Goldsmith, 616 bbl., 4,146-86 ft.
Intercoastal Pet., 3-C Kloh, 409 bbl., 4,070-4,205 ft.
Phillips-Pure, 94 Cowden, 1,313 bbl., 4,097-4,150 ft.
North Cowden field: Llano, 4-B Holt, 898 bbl., 4,140-94 ft.
Foster field: Sinclair Prairie, 2 Gist, 229 bbl., 4,151-4,271 ft.

Gaines County

Seminole field: Amerada, 4-A Riley, 697 bbl., 5,098-5,330 ft.
Atlantic, 1-B Riley, 801 bbl., 5,100-0,318 ft.
Magnolia and Atlantic, 6-219 H.&J., 541 bbl., 5,096-5,252 ft.
Magnolia and Atlantic, 7-219 H.&J., 736 bbl., 5,050-5,263 ft.
Magnolia and Atlantic, 7-265 H.&J., 681 bbl., 5,097-5,299 ft.
Osage, 2-B Tippett, 861 bbl., 5,060-5,305 ft.

Hockley County

Slaughter field: Stanolind, 15-B Slaughter, 891 bbl., 4,955-5,030 ft.
Western States Gasoline Corp., 3 Frazier, 2,360 bbl., 4,965-5,013 ft.

Pecos County

Tobarg field: A. J. Rife, 16 Tippett, 42 bbl., 420-421 ft.

Upton County

McElroy field: Gulf, 42 Crier-McElroy, 2,081 bbl., 2,645-2,838 ft.
Gulf, 217 McElroy, 2,362 bbl., 2,652-2,855 ft.

Ward County

Estes field: Gulf, 134 O'Brien, 43 bbl., 2,556-2,652 ft.
Sealy field: Mid-Continent, 8 Sealy, 1,549 bbl., 3,004-06 ft.

Winkler County

Illinois Oil, 8-A McCutcheon, 59 bbl., 3,105-4,220 ft.

Yoakum County

Wasson field: Aloco Oil, 6-C Willard, 1,104 bbl., 4,885-5,200 ft.
Anderson-Prichard, 4 Willard, 1,008 bbl., 4,929-5,199 ft.
Denver P. & R., 10-A Whittenburg, 1,408 bbl., 4,890-5,115 ft.
Honolulu, 13-804 Wilder, 1,854 bbl., 4,918-5,130 ft.
Humble, 28 Wooten, 998 bbl., 4,910-5,180 ft.
Osage, 2 Nelson, 821 bbl., 4,910-5,151 ft.
Shell, 8-E Baumgart, 1,567 bbl., 4,870-5,190 ft.
Shell, 11-E Baumgart, 1,542 bbl., 4,850-5,160 ft.

TEXAS PANHANDLE FIELD COMPLETIONS

(24-hour gages)

Carson County

Magnolia, 80 fee (244), 16 bbl., 3,044-70 ft.
Magnolia, 83 fee (244), 35 bbl., 3,005-32 ft.

Gray County

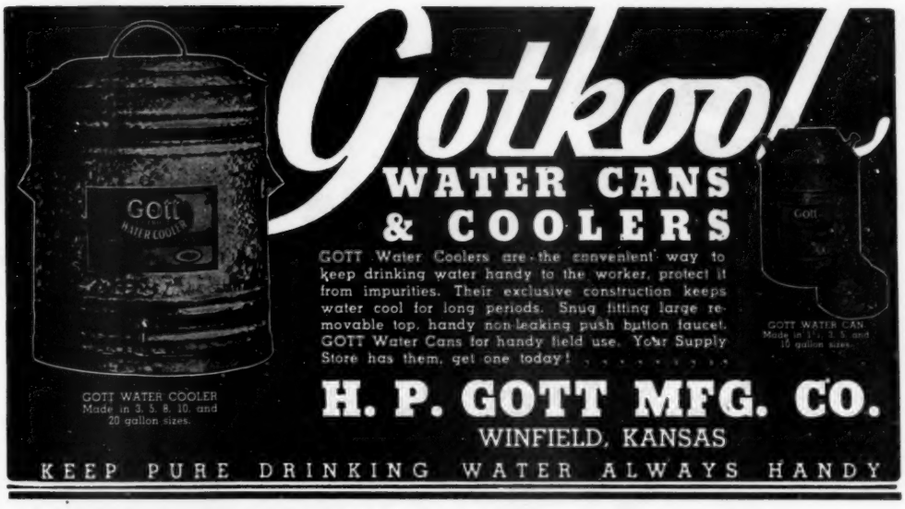
Cambrian, 3 Saunders, 350 bbl., 3,244-3,300 ft.
Continental, 4 Brown, 88 bbl., 3,232-90 ft.
Crenshaw, 6 Benton C, 250 bbl., 3,020-3,125 ft.
King, 15 Horner, 419 bbl., 3,223-55 ft.
King, 8 Simpson, 377 bbl., 3,190-3,255 ft.
Magnolia, 3 Morse C, 303 bbl., 2,550-2,674 ft.
Stanolind, 13 Merten, 331 bbl., 3,250-3,314 ft.
Texas, 33 Saunders, 117 bbl., 2,740-80 ft.
Tripplehorn, 5 Webb, 20 bbl., 2,572-2,665 ft.

Hutchinson County

Clay Brothers, 6 Herring A, 49 bbl., 3,198-3,205 ft.
Cree & Hoover, 5 Harvey Sisters, 350 bbl., 2,975-3,021 ft.
Cree & Hoover, 6 Harvey Sisters, 450 bbl., 2,988-3,035 ft.
Gulf, 98 Dial, 243 bbl., 2,815-2,905 ft.
C. L. McKinney, 8 Pitcher, 250 bbl., 3,085-3,185 ft.
Smith Brothers, 6 Hodges, 20 bbl., 2,986-3,047 ft.

Moore County

Phillips, 1 Witherbee, 3,100,000 cu. ft. of gas, 3,065-3,215 ft.
Texoma, 14-M Coon, 8,100,000 cu. ft. of gas, 3,000-3,400 ft.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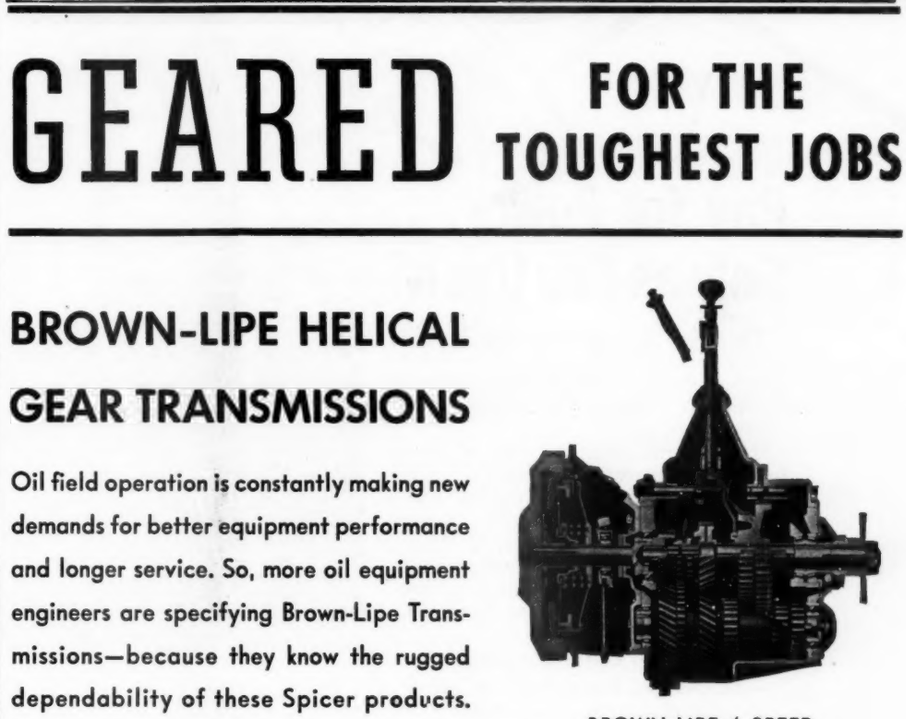
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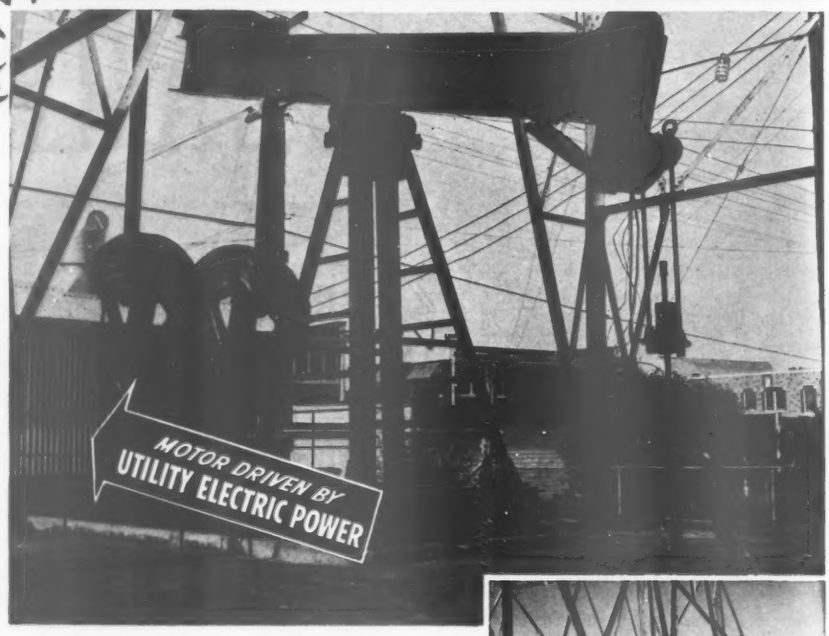

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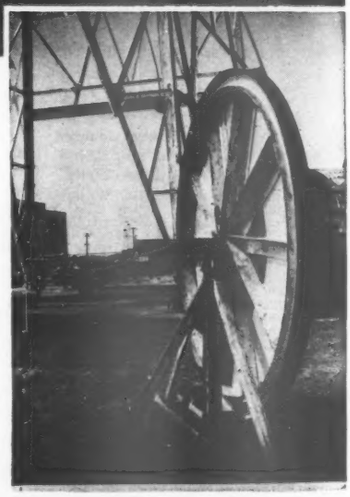

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North Louisiana, Arkansas

By
GEORGE WEBER

Gas Blowout Heralds New Pay Below Wilcox in Olla Field

SHREVEPORT, La., July 8.—A gas blowout in a south extension area at Olla, La Salle Parish, Louisiana, attracted interest as a possible discovery of deeper gas below the gas and oil production in the Wilcox. Lisbon, Claiborne Parish, is again of current interest with a deep test staked on the north flank of the Pettit lime field, heralding possible further development of the deep Travis Peak gas production discovered last year.

Recycling for Cotton Valley, a prolific gas-condensate pool in the lower Marine, is now a certainty with the signing of 80 per cent of operators and royalty owners involved, to a unitization contract.

South Arkansas attention is focused on the Fouke area, which has a south offset to discovery on the pay, and a south outpost test spudded. Standard of Louisiana, 1 Zimmerman, will be closely watched as that Union County wildcat approaches the Smackover lime, with good chances for finding production. The Nick Springs area may receive another deep test, with permit issued by the state for deepening a well recently abandoned in the area.

Production in Larger Pools

Estimated daily gross production, week ended July 5.

NORTH LOUISIANA

	Bbl.
Bellevue	480
Caddo, light	5,455
Caddo, heavy	2,135
Converse	545
Cotton Valley	*14,450
Cross Lake	4,935
De Soto and Red River	1,035
Elm Grove	325
Haynesville	2,675
Holly	55
Homer	2,850
Lisbon	4,850
Olla	1,850
Pleasant Hill	85
Rodessa	19,530
Sarepta-Carterville	†320
Sligo	2,015
Sugar Creek	585
Urania	2,420
Zwolle	1,790
Total North Louisiana	68,385

SOUTH ARKANSAS

Atlanta	2,550
Big Creek	70
Buckner	1,790
Champagnolle	1,180
Dorcheat	800
El Dorado	1,740
Fouke	130
Lewisville	850
Lisbon	210
Magnolia	20,405
McKamie	430
Miller County	275
Nevada	540
Nick Springs	330
Rodessa	2,035
Schuler	18,575
Smackover, light	1,760
Smackover, heavy	13,805
Stephens	535
Troy	1,300
Urbana	920
Village	1,095
Total South Arkansas	71,325

*4,210 bbl is distillate, †55 bbl. is distillate. Rodessa, Texas, 16,705 bbl.

Olla

Field development in the new Olla field, La Salle Parish, continued strong with interest directed to the Placid, 19 Louisiana Central. The test, drilling in an east offset location to gas discovery, 2 miles south of the Olla field proper, and northeast of a recently completed oil producer in the immediate area, blew out while drilling around 3,500 ft.

The wild well made an unestimated amount of gas, and it was feared for a time that it would crater. However, later reports show salt-water production, and it is expected that the well will be brought under control soon. The test was being deepened below the gas and oil horizons recently opened in the Wilcox, and may open new gas production at a greater depth. Other Olla drilling continues routine, with an extension of oil production one location west by completion of Placid, 20 Gandy-Louisiana Central Unit. Two wildcats in the area, Neeley, 1 Lisenby, located ¾ mile southeast of production, and Skipper, 1 Whidden, abandoned at 3,018 ft., about 6 miles southeast of Olla. The north outpost gas discovery brought in last week about 4 miles from oil production in Olla proper made an estimated 20,000,000 cu. ft. of dry gas, with a rock pressure of 1,040 lb.

Lisbon Deep Test

Union Producing Co. is moving material in on 1-A Meadows, located about 2½ miles north of Lisbon, and ¾ mile northeast of the same operator's 1 Meadows, which is seeping oil, although never completed for a commercial producer. The test will be carried to the lower Marine or Cotton Valley formation. It is located on a large block assembled on geophysical surveys showing a pronounced high in the area.

South Arkansas

In the Fouke field of Miller County, Standard of Louisiana, 2 Sturgis, offset to discovery encountered what is believed to be the Paluxy pay sand producing in the 1 well. The test cored at 3,394-3,414 ft. recovering red sand, and showed red shale between 3,515 and 3,589 ft., excepting for a 4-ft. section of permeable saturated oil sand at 3,570-74 ft. If this section proves to be the Paluxy pay, it will be a disappointment, for the pay ran 25 ft. in effective thickness in the discovery well. The offset was last reported coring below 3,589 ft. An interesting outpost to Fouke was spudded last week. It is Gulf, 1 Eaton, located about 2 miles southwest of the field, drilling below surface casing set at 209 ft.

Wesson Test

Standard of Louisiana, 1 Zimmerman, near Wesson, Union County, is the most important wildcat of the week in South Arkansas. The test was judged a good possibility for further Smackover lime discovery after it showed several oil sand streaks in the Cotton Valley formation, a good indication of oil in the deeper Smackover lime. However, salt-water sand at 7,655-65 ft. was cored, and after drilling to 7,786 ft., operators again cored salt-water sand at 7,786-96 ft. This sand is believed to be the Jones sand, which produces at Schuler, lying to the west, and somewhat offsets the upper oil shows, as regards possibility for finding Smackover production. The test is drilling below 7,796 ft.

The Nick Springs field, Union County, may get a deep exploration test, with issuing of a permit to deepen the former Barnsdall, 1 North Central Texas, 5-18-14. The well will be drilled by Charles Travis and others.

Of general interest in North Louisiana is the agreement reached by operators and royalty owners in the Cotton Valley field of Webster Parish. Recycling of the unitized lower Marine gas production, after extraction of the condensate, will be begun as soon as the 150,000,000-cu. ft. capacity plant is completed. The plan will require the drilling of a number of wells in the field for input purposes at the top of the structure and producing wells along the rim of the anticlinal field.

NORTH LOUISIANA COMPLETIONS

Caddo—Caddo Parish

Stanolind, 133 Dillon, 13-21-15, pumping 74 bbl. oil, 15 bbl. salt water, T.D. 1,650 ft.
Stanolind, 1 R. T. Glassell, 25-21-15, pumping 10 bbl. oil, 15 bbl. salt water, T.D. 1,590 ft.
J. G. Strahan, 4-A Stiles, 29-21-16, pumping 25 bbl., T.D. 2,368 ft.
W. & W., 1 Guy, 12-20-16, 120 bbl. open tubing, T.D. 1,523 ft.

Sligo—Bossier Parish

Triangle, 6-C Skannal, 1,002 ft. west, 332 ft. south, NE cor. 13-17-12, 250 bbl., ¼-in. choke, tubing pressure 150 lb., casing pressure 500 lb., T.D. 3,010 ft.

Olla—La Salle Parish

Neeley, 1 Lisenby, NW NE NE 19-10-3, salt water, T.D. 2,380 ft.
Placid, 20 Gandy-Louisiana Central Unit, NW NE 13-10-2e, 360 bbl., 15/64-in. choke, 25 per cent basic sediment and salt water, tubing pressure 115 lb., casing pressure 200 lb., perforated 2,240-58 ft. and 2,264-69 ft., T.D. 2,455 ft.
Placid, 17 Louisiana Central, NW SE 19-11-3e, 20,000,000 cu. ft. dry gas, rock pressure 1,040 lb., perforated casing 2,475-85 ft., old T.D. 5,097 ft.

Wildcat—La Salle Parish

Skipper, 1 Whidden, 800 ft. north, 520 ft. east, SW cor. 10-9-3e, dry, T.D. 3,018 ft.

ARKANSAS COMPLETIONS

Magnolia—Columbia County

Standard of Louisiana, 1-C Merritt and others Unit, 16-17-20, 264 bbl., 10/64-in. choke, tubing pressure 1,000 lb., casing pressure 1,300 lb., T.D. 7,636 ft.

Schuler—Union County

Phillips, 1 C. H. Murphy, 165 ft. south, 10 ft. east, NW cor. S½, Lot 2, NW 19-18-17, 141 bbl., ¼-in. choke, tubing pressure 225 lb., casing pressure 350 lb., T.D. 7,690 ft.

EAST TEXAS BORDER COMPLETIONS

Smithland—Marion County

Jules Constantine, 1 S. Hart, 435 ft. north, 330 ft. east, SW cor. 25-acre tract, G. Coore Survey, pumping 18 bbl., T.D. 2,310 ft.
R. B. Hollandsworth, 1 J. D. Hartzo, 2,820 ft. north, 2,050 ft. west, SE cor. D. Hartzo Survey, dry 2,540 ft.
Roosth & Genecov, 1 T. O. Livingston, 300 ft. SW cor. 8-acre tract, G. Coore Survey, dry 2,424 ft.

Forest City Basin

(Continued from Page 83)

NW Section 5-1n-15e. The test was drilled to 400 ft. before stopping to set surface pipe at 100 ft., the extra depth having been attained in the belief that water would intrude.

All the new tests are rotaries. E. J. Shaffer, of Hutchinson, Kan., is drilling the two Pawnee Royalty Co. wells and the Jerry Oven Drilling Co. of Enid, Okla., has the Campbell-Sparks contract. Shaffer and Fred Rust of Hutchinson staked location for their No. 1 Boose, C NE NW Section 16-1n-16e, Richardson County, 1½ miles east of the No. 1 Boice, and dug cellar.

In the Missouri sector of the Forest City basin, Brin & Nathan's No. 1 Decker, C NW NW Section 1-61n-38w, Holt County, set 8-in. casing at 1,920 ft. and was drilling below 1,990 ft., having topped Ste. Genevieve lime at 1,868 ft.

American Oil & Gas Corp. was drilling at 1,023 ft. in its No. 1 Thompson, SW SW Section 30-58n-31w, DeKalb County. Ten-inch pipe was set at 944 ft. and was to be dropped. Near Union Star in the same county, E. H. Lawhon's No. 1 Gottschall, C SE SE Section 18-59n-32w, drilled to 864 ft., but 15-in. casing was stuck below 500 ft.

Chillicothe Syndicate's No. 1 Linton, C W½ SE Section 15-56n-23w, Livingston County, resumed drilling after a long shutdown and was at 1,000 ft. One of the two Adair County tests seemed near completion. It is J. W. Eddington's No. 1 Clark, NE SE Section 8-63n-14w, which topped Arbuckle lime at 1,216 ft. and shut down at 1,247 ft. The other is Eddington's No. 1 Johnson-Capps, SW SW SW Section 31-64n-15w. It topped Viola lime at 950 ft. and shut down at 1,005 ft., but planned to resume drilling soon.

H. A. Black has spudded his No. 1 Schempp in SW SW Section 21-62n-10, Knox County.

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Among the Drilling

JOE ROSEN and SAM KAMEN, eastern Kansas contractors, recently signed three drilling contracts for development in Greenwood and Chautauqua counties. They have started work on their first test in Greenwood County.

GRANT HELM, contractor of Saybrook, Pa., suspended work recently on a well which he was drilling for South Penn Oil Co. in the Dunham Run, Pennsylvania, area, pending arrival from Bradford of special equipment with which to core the oil sand. If the analysis of the core shows the sand is suitable for water flooding, that type of secondary recovery will be started on the South Penn lease.

W. C. IRWIN Drilling Co., Russell, Kans., was bailing cavy hole at Nadel & Gussman's No. 1 Mudd, Section 16-15-15w, outpost 1 mile west of the Donovan pool, Russell County, Kansas, necessitating running of 6⅝-in. casing to 2,855 ft. in Topeka lime. The Topeka zone checked structurally higher than in the Donovan pool. The contractor planned to drill to Lansing lime, then underream and lower casing to that level.

CLAUDE Drilling Co., Tulsa, spudded and was drilling ahead with rotary tools at Imo Oil & Gas Co.'s No. 1 Eveleigh, Section 3-18-14w, wildcat west of the village of Boyd, in Barton County, Kansas.

HARRISON & DILLARD received contract for a projected 10,000-ft. wildcat to be drilled in the Lolita area, Jackson County, Texas, for S. W. Richardson. The well is located on the E. A. Clement lease in the S. F. Austin Survey, about 2 miles northwest of Lolita.

LOFFLAND BROTHERS are rigging up in Perry County, Mississippi, for Fohs Oil Co.'s No. 1 Bond Lumber Co., a wildcat located about 4 miles east of Maxie in Section 17-1s-11w.

T. A. CARLTON will move a rotary to the Glenmora area, Rapides Parish, Louisiana, for Lynes & Douglas. The well is scheduled to be drilled in Section 15-1s-2w, and will be drilled to the Wilcox formation.

HARRY L. EDWARDS Drilling Co. extended the Bay City field, Matagorda County, Texas, about ¼ mile east as a production test was being made of Midstate Petroleum Co.'s No. 1 Parker. Another rig is running in the Dickinson field for the same company, while in the Old Ocean field, Brazoria County, two operations are reported for the Fidelity Oil & Royalty Co., and Harrison & Abercombie.

HOUSH & THOMPSON completed another producer in the Greens Lake area, Galveston County, Texas, for Sun Oil Co., and the rig is expected to be moved to a new location. The contractors are rigging up for another well in the Eola field, for Gulf Refining Co.

JACK FRAZIER abandoned his No. 1 Coline, a wildcat in San Jacinto County, Texas, and the rig is being moved to the Mount Houston area, Harris County, Texas, for No. 1 Johnson, a projected 7,800-ft. wildcat located in the Whitney Britton Survey. The well will be drilled jointly with H. C. Cockburn and C. B. Bunte.

ALLEN & MORRIS are retesting Coronado Corp.'s No. 1 J. J. Welder, which opened a new field in the Seadrift area, Calhoun County, Texas. Another rotary is operating for the same company in the La Rosa field, Refugio County, Texas, while a new operation was started in the field for Shield Oil Co. Two other operations are reported for the Bruni and Fagan fields for American Liberty Oil Co. and Norsworthy Production Co.

PARKER Drilling Co., Tulsa, has finished a large sour-gas well in the Mattis field of Lea County, southeastern New Mexico, for Gulf Oil Corp. It is Gulf's No. 1 Bertha, located in SW SW Section 23-23-37. With pay drilled from 3,520 to 3,600 ft. in lime, the well made 3,147,600 ft. of gas daily after treatment with acid. The well flowed through open tubing and no oil was present.

OILWELL Drilling Co., Dallas, Tex., is rigging up pumping unit at its No. 1 Moss, southeast extension to the Foster field in Ector County, West Texas. Located in the NW NE Section 42, Block 42, Township 2s, T.&P. Survey, the well extends the field several locations to the east of production. Bottomed at 4,225 ft., the well swabbed 25 bbl. of oil hourly for 6 hours following acid treatment.

RICHARDS & HOLLOWAY, Inc., Tyler, Tex., have the drilling contracts for three tests to be drilled in the Flag Lake field of Henderson County, eastern Texas, for Hines & Hancock. The operators, both of Dallas, Tex., are preparing to start the first of three tests on their Dil-

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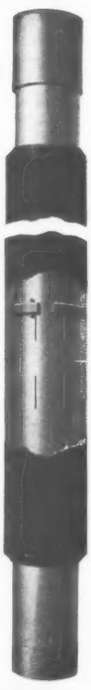

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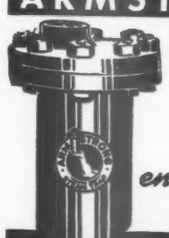

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Contractors

lard lease in the Jeffries Survey. Work on this lease has been delayed for several months by litigation. The contractors are moving in material for the first test which will be No. 3 Dillard, located 460 ft. west of No. 1 Dillard and a location southwest of Hunt & McMillan's No. 2 Dillard.

SOUTH STATES Drilling Co., Dallas, Tex., has the contract on a wildcat spudded last week in Denton County, North Texas. It is the newest of the Fort Worth basin deep wildcats and is projected to 4,000 ft. The wildcat is Amon G. Carter's No. 1 W. P. and A. P. Allen, NW cor. Stephen Westbrook Survey, just north of the town of Drop in the western part of the county. The wildcat is on a 16,000-acre block assembled during the Fort Worth basin leasing play of several months ago. M. A. Neely, former oil man and landowner in the area, assembled the block.

CARPER Drilling Co., Artesia, N. M., was preparing to start work at Keohane & Saunders' No. 1 Day, NW Section 3-19-31e, Eddy County, New Mexico. If it is completed as a producer it will extend the Shugart field ¾ mile westward.

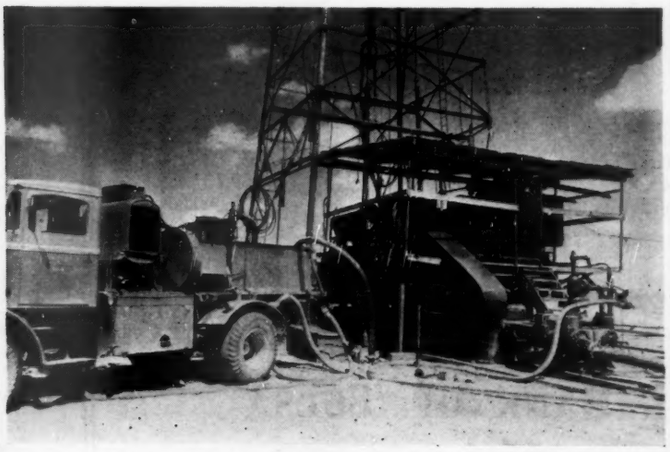
AJAX Drilling Co., Tulsa, was making hole below 3,580 ft., and looking for base of Mississippi lime at Burke-Greis Oil Co. and Zephyr Drilling Co.'s No. 1 O'Keefe, Section 26-19-5e, wildcat near Yale, Okla. Location is on a core-drilled structure and formations were reported checking high.

GROOVER & ROSE, drilling contractors of Albany, Tex., in partnership with Jones & Stasney, geological firm also of Albany, Tex., have brought in the newest discovery well in Jones County, West Central Texas. It is the partnership's No. 1 B. C. Humphrey, located in the SE cor. SW Section 192, B.B.B.&C. Survey, a mile north of the Griffin field in northeastern Jones County. The well flowed and pumped 191 bbl. of oil daily after treatment with 500 gal. of acid in the lime from 1,708 to 1,270 ft. The new well is near a Palo Pinto lime test drilled by the operators several months ago which found a show of oil at 1,700 ft. but was later abandoned in the Palo Pinto lime.

RAY STEPHENS, INC., Oklahoma City drilling contractor and operator, has taken over Ohio Oil Co. and Ramsey Petroleum Corp.'s Yule lease on the east side of the Cement field, Caddo County, Oklahoma, and was moving in equipment to rework an old gas well in Section 1-5-9w, completed several years ago at 5,171 ft. The Stephens firm has several other tests under way in the Cement field, which it has extended and defined on the west.

VIERSON Drilling Co., Okmulgee, Okla., and Sidwell Drilling Co., Sapulpa, Okla., have started work at wildcats in Sections 24-14-10 and 35-19-8, respectively, in Creek County, Oklahoma.

ENGLISH Drilling Co. and Lacy Rollins, of Oklahoma City, passed up saturated Noble-Olson sand at 3,163-3,293 ft., and were drilling ahead to Wade sand zone at No. 3 Hedlund, Section 11-5-9w, Cement, Oklahoma, field. These contractors and operators drilled their first well in the Cement area 1 year, ago and subsequently completed 14 oil wells and 2 dry holes in the field.



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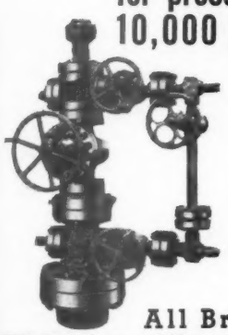

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Canadian Fields

By VICTOR LAURISTON

CHATHAM, Ont., July 6.—Crude and naphtha production from all Alberta fields in May totaled 657,918 bbl., compared with 617,271 bbl. in April, an increase of 40,647 bbl. Turner Valley crude increased from 586,248 to 626,659 bbl. Of the Turner Valley crude producers, Arrow Royalties' No. 1 West Central Turner Valley was the largest with 22,036 bbl., not including oil used with acid. Home Oil Co.'s No. 3, North Turner Valley, ranked second, with 16,142 bbl. Other major producers were Anglo-Canadian Oil Co.'s No. 7, with 12,881 bbl.; Home's No. 2, with 12,809 bbl.; Royalite's No. 46, with 12,256 bbl.; and Royalite's No. 48, with 12,014 bbl., the latter in its first full month's production.

Far North Producer

In the extreme north end of the field Alberta Oil Incomes' No. 1, LSD 4, Section 34-20-3w5, finished at 6,957 ft. after entering the black lime at 6,940 ft., blew into production under its own gas while being completed. It settled to a steady flow of 648 bbl. a day without acidization. The well has the largest natural initial flow yet encountered in North Turner Valley, with the possible exception of Home Oil Co.'s No. 2. The upper porous zone extended 90 ft., from 6,460 to 6,550 ft.; and the lower zone 180 ft., from 6,750 to 6,940 ft. Location is ¼ mile east of Home Oil Co.'s No. 3, previously the largest producer in North Turner Valley. The well is being cleaned and acidized preparatory to official test for allowable. The well logged much higher than recent Turner Valley crude producers, getting the Madison lime at 6,340 ft. compared with 7,688 ft. in Home's No. 3, ¼ mile west. The strike opens an important new crude area north and east of the earlier North Turner Valley crude producers.

Allowables Increased

Effective July 1, Turner Valley crude allowable was increased from 21,000 to 26,000 bbl. a day. The output was previously stepped up from 18,000 bbl. on June 21. The new schedule lists 111 crude producers, and the aggregate is exceeded only by the first production schedule of 28,000 bbl. for 53 producers in September 1938 and a later schedule of 27,000 bbl. from 57 producers in July 1939.

Under the new schedule Arrow Royalties' No. 1, West Central field, is the largest producer, with 690 bbl. a day. Average production per well is increased from 189 to 234½ bbl. a day.

Recent Completions

In Section 32-18-2w5, Southwest Turner Valley, Royal Canadian Oil Co.'s No. 4, LSD 12, finished at 8,089 ft., has been given allowable of 407 bbl., following temporary allowable of 300 bbl.

In Section 20-18-2w5 York Oils' No. 3, LSD 3, finished at 8,024 ft., has been given allowable of 354 bbl., replacing temporary allowable of 289 bbl.

Steveville Field

In the Steveville field, east of Calgary, Standard of British Columbia's No. 1 Princess, LSD 13, Section 22-20-12w4, bottoming in the Devonian limestone at 6,155 ft., is completing gun-perforation tests of various horizons. Details have not been made public, but in addition to some gas production, possibilities of a fair crude producer are indicated.

Lloydminster Operations

In the Alberta end of the Lloydminster field Shaw Petroleums' No. 2, LSD 10, Section 25-49-1w4, has been put on steady production. After pump was installed some trouble was experienced with gas. Gas anchor was installed and in a 15-hour test run some 125 bbl. of crude was pumped into the tanks. Crude has been delivered to the Lloydminster refinery.

Vermilion Field

In the Vermilion field, east-central Alberta, Battleview's No. 2, LSD 13, Section 20-50-5w4, bottoming at 1,842 ft., is mainining a steady pumping production. Potential is estimated around 125 bbl. a day. Some crude has been shipped, and about 1,000 bbl. are in storage. Franco-Battleview's No. 3, LSD 13, Section 20-48-5w4, bottoming at 1,757 ft., is testing. Vermilalta Oil Co.'s No. 1, LSD 16, Section 20-50-5w4, is below 1,509 ft. Vermilion's No. 1, LSD 1, Section 14-48-6w4, is below 1,075 ft.

E. L. Cord, of Los Angeles, has location for Cord-Graham's No. 1 in LSD 13, Section 21-50-5w4, to be drilled with cable tools by Whitey Wilson. Derrick is up and equipment on the ground. The Cord interests have contracted to drill two tests between Battleview's No. 2 and Vermilalta's No. 1. Graham-King's No. 1 has been spotted in LSD 1, Section 23-49-6w4. This is the former Apex Oil & Gas Co. location, and test will be carried into the Devonian limestone, with the S.W.S. Drilling Co., of Edmonton, handling the contract. This group will drill a second well, while a Vancouver syndicate is also arranging for two wells.

Ontario Gas Fields

In the Malahide field, Elgin County, Ontario, Central Pipe Line Co.'s No. 1, Emerson Browne farm, SE Lot 29, Concession 5, finished at 1,070 ft. with initial flow of 2,080,000 cu. ft. a day, without a shot. Central's No. 1 Willard W. Brown farm, SW Lot 16, Concession 5, finished at 1,106 ft. with around 1,500,000 cu. ft. a day natural.

In Bayham Township, Elgin County, Central Pipe Line Co.'s No. 1 Warren Baldwin farm, southeast part Lot 12, Concession 8, failed to get production in the Guelph-Niagara formation. It was continued to the Clinton formation where a small flow, around 18,000 cu. ft. a day, was encountered. It is being pulled and plugged. A second well will likely be drilled in the same general area as a further test of the Clinton.

In the west end of the Malahide field Union Gas Co.'s No. 45, SE Lot 7, Concession 4, Malahide Township, finished a dry hole. Union's No. 44, NW Lot 30, Concession 4, got about 200,000 cu. ft. a day in the Guelph-Niagara, and will likely be shot.

In the north end of the Brownsville field Jack Perdue and associates' No. 1, SW Lot 24, Concession 4, Dereham Township, finished a dry hole below 900 ft.

NATIONAL BANK OF TULSA

Statement of Condition June 29, 1940

RESOURCES

Cash and Due from Banks	$ 34,595,775.66	
U. S. Government Securities	12,986,461.38	
Other Bonds and Warrants	4,091,613.34	$ 51,673,850.38
Loans and Discounts		18,169,457.76
Overdrafts		328.63
Income Receivable Accrued		117,656.95
Stock in Federal Reserve Bank		180,000.00
Bank Premises		2,992,500.00
Customers' Liability under Acceptances		7,767.20
TOTAL		$ 73,141,560.92

LIABILITIES

Deposits		$ 66,102,411.49
Acceptances Executed		7,767.20
Income Collected Not Earned		59,021.19
Reserve for Interest, Taxes, Etc.		39,139.38
Reserve for Preferred Dividends		9,000.00
Capital—Preferred	$ 600,000.00	
Capital—Common	2,700,000.00	
Surplus	2,700,000.00	
Undivided Profits	924,221.66	6,924,221.66
TOTAL		$ 73,141,560.92

NATIONAL BANK OF TULSA

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Rocky Mountain Area

By T. R. INGRAM

Normal Activity Marks Week In Rocky Mountain District

DENVER, Colo., July 8.—The Big Sand Draw gas field in Fremont County, Wyoming, was extended ⅛ mile to the south in Sinclair-Wyoming 12 Unit, which was completed for 4,000,000 cu. ft. of gas in the Frontier. The La Barge field in Sublette County had two completions, Texas 1-G flowing an average of 207 bbl. daily for the first 6 days, and Marvel 2-G making 100 bbl. initially.

Cut Bank in Montana had only one completion, the first gas well this year, in Glacier Production 1 Yunck Unit for 9,000,000 cu. ft. Kevin-Sunburst had three completions, all small wells, after acidizing.

New operations include a wildcat to be drilled to 6,000 ft. or more on the Absarokee structure, Stillwater County, Montana, by the Texas Co., a new well for Sinclair-Wyoming in the Muskrat gas field in Fremont County, Wyoming, another Shannon sand well for the General Petroleum Corp. on Cole Creek, one new operation for the Continental Oil Co. in Lance Creek, another for the Texas Co. in La Barge, five new wells in Cut Bank, and four in Kevin-Sunburst.

SOUTHEAST NEW MEXICO

HOBBS, N. M., July 8.—The Southeast New Mexico portion of the Permian basin showed a decided decline in activity over the past week. The decline returned the area to about its normal pace, the 2 weeks previous having been definitely above normal in the number of locations and completions reported for a 7-day period.

During the past week there were seven new operations reported for the district, two of which were wildcats scheduled for deepening. Eddy County was given a new location in the Leonard field and a reinstated wildcat test in the western part of the county. It was Trojan, 1 Grant, 2,440 ft. from the north and east lines of 33-20-25. It is being cleaned out to deepen below the previously abandoned depth of 1,590 ft.

Lea County was given four new locations, all in proven fields. The remaining deepening job was scheduled for a previously abandoned wildcat in Chaves County and northwest of the Artesia area of northern Eddy County. It is Elmer J. Fisher, 1 Hill, located 2,310 ft. from the south and 990 ft. from the west lines of 8-15-25. Rigging up is under way to deepen below 850 ft.

Nine new completions were listed for the district, one being in the Jackson and two in the Loco Hills fields of Eddy County, one a wildcat abandonment in Lea County and the remainder good producers in the Lea County fields. Lea County's completions were one each in the Maljamar, Vacuum, South Eunice, Arrowhead and Mattix fields. The Mattix field completion was a 3,147,600-cu. ft. gas well by Gulf Oil Corp. as its 1 Bertha.

Chaves County

Elmer J. Fisher, 1 Hill ..... NW SW 8-15-25
R.U. to D.D. below 850 ft.

Eddy County

Sanders Bros. 1 De Temple ..... NW NW 27-19-31
S.D.O. 2,410 ft.
Bassett & Birney 1 Platt ..... SW cor. 26-18-26
Old failure being D.D. below 2,342 ft.; P.B. 1,125 ft.; shot 160 qt., 1,080-1,122 ft.; S.S.O.; reshot 4?0 qt.; csg. split; H.F.W.; S.D.O.
Wax Weathers 1 Flood ..... SE SE 24-18-23
S.D.O. 1,740 ft.
M. Yates, Jr., 1 McCall ..... SW SW 24-18-26
U.R. 8¼-in. csg. 882 ft.
Jack Harris, 1 Josey ..... SW SE 19-20-23
S.D.R. 286 ft.
Trojan, 1 Grant ..... SW NE 33-20-25
C.O. to D.D. below 1,590 ft.
Schumacker, 1 Levers ..... NE NE 33-16-29
Drlg. 2,310 ft.
J. B. Mulcock, 1 Etz ..... NE SW SW 25-16-30
S.D.R. 2,530 ft.
Everts & Moran, 1 Ranuz ..... NE NW 18-23-26
T.D. 1,373 ft.; U.R.
J. B. Cowden, 1 State ..... SW SE 3-17-20
Between Root field and High Lonesome. Spdg.
G. A. Grober, 1 Wright ..... SW SW NW 25-18-28
S.O.&G. 1,382 ft.; est. 10 B.O.P.D.; P.B. 2,398 ft.; C.O. after shot at 1,810-70 ft.
Bedingfield & Walker, 1 Seale ..... SE SE 10-20-27
Spd. and S.D.
G. M. Cone, 1 Hare ..... NW NW NE 14-16-28
3 mi. W of High Lonesome field. S.D.R. 1,400 ft.
Artesia Drlg. Co., 1 Hoffman ..... SE SE SE 14-17-24
Est. 1,250,000 cu. ft. at 938 ft.; drlg. 1,295 ft.
Frederick, 1 Reed ..... NE SW 28-24-28
O.W.D.D.; top gas sand 2,891 ft.; est. 2,000,000 cu. ft. gas; casing set at 2,873 ft. and collapsed at 2,200 ft.; recmtd. csg.; W.O.C.
Thomas & Bowers, 1 H. W. Etz ..SW SW NW 13-16-30
T.D. 3,744 ft.; P.B. 3,200 ft.; C.O. after shot from 3,140-60 ft.; before shot made 10 B.O.P.D.; flowing by heads through casing; P.B. 3,200 ft.; S.D.O.

Dona Ana County

Picacho, 12 Armstrong 15-23s-1w
W.O.C. 2,660 ft.
Slack & Mahres, 1 Simmons 35-22s-5e
Setting whipstock at 2,785 ft.; T.D.

Luna County

O. D. Berry, 2 Berry 33-22-10
T.D. 925 ft.; S.D.O.

Lea County

Gulf, 1 Amanda E. Drinkard ..... NW SE 25-22-37
Skelly area; 5,000-ft. test. S.S.G. 3,794-3,804 ft.; made 5 gal. oil hourly; T.D. 3,958 ft.; prep. P.B. 3,545 ft.; test.
J. D. Barefield, 2 Stroup ..... SW NE 12-18-32
S.D.O. 4,055 ft.; S.S.O. 4,040-50 ft.; 1 bailer oil after 2-day shutin; rng. electrical survey at 4,100 ft., S.S. O.&G.; S.D.O. 4,100 ft.; may D.D.
Stanley & Weiner, 1 Saunders ..... NE NE 20-21-38
Spd. and S.D.

Otero County

Ernest, 1 Ernest 20-25-7
S.D.O. 3,204 ft.; S.S.G. 3,180 ft.
Otero, 1 State ..... SE NW 5-22-10
S.D.O. 825 ft.

Socorro County

Joiner, 1 Belen grant ..... SW SW NW 16-3-1
S.D.O. 845 ft.

SOUTHEAST NEW MEXICO COMPLETIONS

Eddy County

Jackson field: Franklin, 3-A McIntyre NW SE 20-17-30
Flowed 95 bbl. through tubing, shot, 3,240-3,331 ft.
Loco Hills field: Franklin, 6-A Yates SW NE 6-18-30
Flowed 200 bbl., 5 hours, through tubing, shot, 2,838-55 ft.
Ployhar & Rook, 1 Gates ..... SE NW 15-18-30
Pumped 40 bbl., shot, 3,145-85 ft.

Lea County

Wildcat: Weiner-Stogner, 1 State ..... SE SE 30-12-32
Junked at 1,373 ft.
Maljamar field: Maljamar, 4-B Wm. Mitchell ..... SW SE 20-17-32
Flowed 260 bbl. through casing, natural, 3,715-44 ft.
Vacuum field: Magnolia, 66 St.-Bridges SW NW 14-17-34
Flowed 174 bbl. 27/64-in. choke, shot, 4,665-4,740 ft.
South Eunice field: Cities Service, 1-B Closson SE NW 18-22-36
Flowed 60 bbl., 20 hours, ½-in. choke, acid, 3,773-3,840 ft.
Arrowhead field: Gulf, 5-C Christmas ..NW SW 18-22-37
Flowed 90 bbl. and 15 bbl. water, 2½ hours, open tubing, acid, 3,665-3,745 ft.
Mattix field: Gulf, 1 Bertha ..... SW SW 23-23-37
Made 3,147,600 cu. ft. gas through tubing, acid, 3,520-3,600 ft.

NORTHWEST NEW MEXICO

McKinley County

Teague, Greer, 1 Santa Fe 33-18n-10w
S.D. 920 ft., for csg.

Rio Arriba County

L. M. Hughes-Continental, 1 Jacarilla-Apache ..... CSL SE NE 22-31n-1w
Drlg. 2,180 ft.; carrying 8¼-in.

San Juan County

Continental, 107 Rattlesnake .... E½ NW 13-29n-19w
T.D. 341 ft.; wtr.
Southern Union Prod., 11-G, CEL NE SE 25-28n-11w
S.D.O. at 2,060 ft.
Claude Carroll, 1 Cornell ..... SW NE 11-29n-12w
Drlg. below 950 ft.
Kutz, 1 Govt. ..... NW NW 28-28n-10w
T.D. 1,250 ft.; U.R. 12½-in. from 950 ft. to bttm.

San Miguel County

Southwest Drlg., 1 Conchas ..... NW NE 34-17n-21e
Drlg. 2,195 ft.

COLORADO

El Paso County

F. F. Hintze, 1 State ..... CEL SE SE 16-11s-66w
T.D. 1,450 ft.; U.R. 8½-in.

Huerfano County

I. E. Sideman-White et al 1 Martinez SW NE 33-26s-67w
Drlg. at unreported depth in lower Pierre; hard bands of limestone at 6 to 8-ft. intervals with S.O.&G.
Ira E. Miller, 1 Hamilton ..... SE SE NW 20-29s-67w
Drlg. below 1,700 ft.

Larimer County

Continental, 1 Whitaker, NE NW NW 30-8n-68w. Fort Collins field, was deepened 2 ft. to 4,700 ft. and pumped 19 bbl. in 24 hours.
Ed Shogren et al, 1 Frazier ..... SE SE 31-4n-69w
S.D. 1,127 ft.; T. Hyg. 1,123 ft.; good S.O. followed by wtr.; may go to Muddy sd.

Las Animas County

Hulme-Johnston-Allison, 1 Azar SE SE NW 27-34s-58w
S.D. 2,300 ft. to renew leases; will res. about July 15.

Moffat County

The first active drilling in the Moffat field for some time was reported this week when the Texas Co. began moving in to drill deeper its No. 2 Walter Wick, in Lot 9, 10-4n-91w. It was completed in the Dakota at 3,902-35 ft. in May 1926, for 400 bbl. per day, initially. It will be deepened to the Sundance.
Texas, 2 Wick, ... Lot 9, 10-4n-91w
T.D. 3,935 ft.; M.I. to D.D.
Mountain Fuel Supply, 2-A Kuykendall ..... SW NW NW 23-12n-100w
Drlg. 810 ft.; cmtd. 10¾-in. at 251 ft.
Steamboat Springs Synd., 1 Sutton NE NE SW 1-5n-96w
Drlg. 2,190 ft.

Ouray County

Ridgway Pet. Synd., 1 Bennett ..... NE SE 2-45n-8w
Drlg. 489 ft. in limey sh.; S.O.&G. at 374-489 ft.; 8-in. cmtd. at 20 ft.

Park County

South Park Oil, 1 Lemar ..... NE NE SE 34-11s-75w
Drlg. 7,352 ft. in hd. sharp sd.

Rio Blanco County

Texas and California Co.'s No. 3 Unit, NE NE NE 27-3n-94w, Wilson Creek, which was reported shut down for orders at 6,333 ft. last week upon encountering water in the Morrison sand, was plugged and abandoned at that depth.
Buford Oil, 1 Govt. ..... SW SW 16-1n-91w
T.D. 4,160 ft.; pulled 6¼-in. to S.R. from 3,640 ft. to bttm.
Texas-California, 4 Unit ..... NW NW NW 2-2n-94w
M.I.M.
W. L. W. Royalty, 1 Rector ..... SE 34-2n-102w
S.D. temp. at 1,443 ft.
Raven O. & R. Co., 30 ..... SE NW NE 31-2n-102w
R.U.C.T.

Routt County

Craig & Moore, 1-X Erwin ..... SW NE 33-7n-85w
T.D. 2,930 ft.; U.R. 4½-in. at 2,630 ft.

WYOMING

Albany County

Metzger & Deter, 1 Nelson .... SE SE SE 12-14n-75w
Drlg. 900 ft.; 8¼-in. at 266 ft.; wtr. in Muddy at 775-818 ft.
Ohio, 1 Coughlin ..... SW NE NW 26-16n-77w
T.D. 4,345 ft.; P.B. to 3,400 ft.; redrlg. at 3,677 ft.

Big Horn County

Ohio, 3 Davis ..... NW SW NW 34-56n-97w
Drlg. 1,727 ft.
McDonald & Curtis, 1 Orchard .... SE NW 24-51n-93w
S.D. 535 ft.; repairs.
Frank S. Scott, 1 Robertson .. SE SE SE 6-54n-93w
Drlg. Embar 727 ft.

Carbon County

Sinclair-Wyoming, 14 Unit .... NW SW NE 7-26n-89w
Drlg. 5,096 ft.
Albert Dev. Synd., 1 Boeke ..... SW NW 18-25n-79w
Drlg. 970 ft.; cmtd. 6⅝-in. at 930 ft.
Tri-State O. & G., 17 ..... NW SE NW 20-21n-80w
T.D. 630 ft.; U.R. 6¼-in. to bttm.

Converse County

U. & I. Synd., 1 Beaver ..... SE NW 29-35n-68w
Drlg. below 400 ft.

Crook County

Union, 1 Casey ..... SE NE NW 3-57n-62w
Drlg. 3,640 ft.; T. Madison 3,285 ft.

Fremont County

Sinclair-Wyoming made a location for its 2-A Muskrat in the Muskrat gas field.

Sinclair-Wyoming 12 Unit, SW SE NW 23-32n-95w, Big Sand Draw gas field, was completed at 3,610 ft. in the Frontier after plugging back from 3,832 ft., for 4,000,000 cu. ft. per day from sands at 3,370-3,440 ft. and 3,525-80 ft. This means an extension of the Fron-

tier sand horizon ⅜ mile to the south and east of an old gas well completed years ago by Producers & Refiners in the NW NW 23, at 2,590 ft.

Sinclair-Wyoming, 2-A Muskrat NW SE SW 34-34n-92w
Loc.; (first report).
Logue Trust Co., 1 Wisner ... NE SW 8-33n-98w
Government Draw dist.; drlg. Cody sh. 802 ft.
Pilot Oil, 6 Enos ... SE SE NE 21-3n-1w
Cmtd. 12½-in. on bttm. at 120 ft.

Hot Springs County

Boybell Oil, 2 Kyne ..... NW SE SW 22-43n-92w
S.D.O. 700 ft.; wtr.

Lincoln County

H. C. Harris et al. 1 Govt. ... SE NW NW 23-21n-117w
Drlg. 3,028 ft.
Fontenelle Dev., 1 Pomroy ..... NE SW 5-24n-113w
Drlg. 1,158 ft.

Natrona County

The Stanolind Oil & Gas Co., operator for the unit in Salt Creek, has begun deepening some of the old wells. Its 8-A Unit, in Section 26, which was a producer in the second Wall Creek at 1,510 ft., will be deepened to the Sundance.

General Petroleum Corp. 51-21-G, in Cole Creek, is moving in materials to go to the Shannon sand. It is 1,320 ft. east of 31-21-G, which is a near completion in the Shannon, and ½ mile east of the discovery in that horizon.

Stanolind, 8 Unit ..... NW NE 26-40n-79w
T.D. 1,510 ft.; pulled liner to deepen to Sundance with rotary; O.W.D.D.
General, 51-21-G ..... NW NW NE 21-35n-77w
M.I.M.
General, 31-21-G ..... NW NE NW 21-35n-77w
T.D. 4,569 ft.; tstg.
Lewis Gebhart, 1 Govt. ..... NW NE SE 10-39n-78w
S.D. 1,327 ft.; C.D.
Continental, 1 McGrath ..... NW SW 15-34n-78w
T.D. 8,343 ft.; P.B. to test basal Wall Creek; set 152 ft. of 4¾-in. perf. liner at 5,690 ft.; bailed 1 B.P.H., 10% oil.
Roval Oil, 1 ..... SW SW SW 26-35n-80w
Drlg. 215 ft.; 12½-in. at 155 ft.

Niobrara County

Ohio, 16 Carrie Putnam, on the southeastern side of Lance Creek, a near completion, is still testing. After plugging back from 5,529 ft. in an attempt to shut off bottom water, it made 756 bbl. of oil and 210 bbl. of water in 24 hours, and is still testing. It may try a squeeze job.

The Minnelusa Oil Corp.-MacKinnie Oil & Drilling Co., 6 Thompson, which was completed last November for 135 bbl. per hour from the Joss sand at 5,474-5,506 ft., is redrilling to recomplete. It drilled through the casing at 4,744 ft., and is drilling ahead in new hole at 5,183 ft.

There were no completions and only one new operation.

Minnelusa-MacKinnie, 6 Thompson ..... NE NW SE 7-35n-65w
Drlg. 5,183 ft. in new hole.
Continental, 8 Joss ..... SW NW NE 6-35n-65w
Rng. drk.; (first report).
Ohio, 15 Lamb, Acct. 1 ..... NW SE SE 32-36n-65w
Drlg. 3,861 ft.
A. B. Cobb, 1 Novick ..... SE NE NW 6-35n-65w
Drlg. 5,006 ft.
Continental, 19 Tom Bell .... NW NE SE 33-36n-65w
Drlg. 4,780 ft.; T. red beds 4,071 ft.
Argo, 13-A Elliott ..... SE NE NW 5-35n-65w
T.D. 5,299 ft.; cmtd. 7-in. at 5,296 ft.; prep. to test.
Ohio, 16 Lamb-1 ..... NW NE NE 5-35n-65w
Drlg. 5,200 ft.; T. Leo 5,148 ft.
Continental, 7 Sam Joss ..... NW SW NE 6-35n-65w
T.D. 5,149 ft.; cmtd. 7-in. at 5,127 ft.; W.O.C.
Continental, 11 Otto Rohlff .... SE NE SE 31-36n-65w
Drlg. 4,978 ft.
Ohio, 16 Putnam ..... SW SW NW 4-35n-65w
T.D. 5,529 ft.; P.B. to 5,457 ft.; perf. with 40 shots at 5,457-25 ft.; tstg.
H. D. Moore, 1 Berggren ..... SE NW 23-35n-63w
Drlg. 2,626 ft. in Minnelusa; wtr. sds. at 2,529 ft. and 2,620 ft.
Ohio, 7 Rohlff ..... NW NE SE 32-36n-65w
Drlg. 1,650 ft.; cmtd. 10¾-in. at 330 ft.
Continental, 7-A Dielman .... NW NE NW 8-35n-65w
Drlg. 2,760 ft.

Park County

Resolute, 2 State ..... SW SW 16-57n-101w
T.D. 8,519 ft.; R.U.R. to D.D.

Platte County

Dividend Oil & Refineries, 1 Johnson ..... CSL NW SW 17-24n-66w
Res. at 3,415 ft.; C.D.; drlg. at 3,500 ft.; carrying 4⅞-in. at 3,440 ft.

Sublette County

The La Barge district, which has shown considerable activity this year, had two good completions, one of which was particularly noteworthy. This was the Texas-California Petroleum 1-G, NW NW SW 27-27n-113w, which was completed at 1,075 ft. and averaged 207 bbl. daily, the first 6 days.

The other completion was Marvel Oil 2-G, CNL NE SE 28-27n-113w, a west offset to the Texas Co.'s completion, which is estimated at 100 bbl. per day from sand at 1,113-74 ft.

There was one new operation.

Texas, 1-H ..... CWL NW SW 27-27n-113w
Loc.; (first report).
North La Barge Oil, 4 Govt. .. CSL SE NE 28-27n-113w
Drlg. 700 ft.
Charles Lackey et al 1 ..... NE NE SW 33-27n-113w
S.D. 105 ft.
Worth Garretson et al, 1 .... NE NW SE 28-27n-113w
T.D. 1,407 ft.; C.O. to test.

Sweetwater County

Union Gas, 1 Hummer ... NW NW NE 6-17n-103w
Cmtd. 10-in. at 320 ft.; W.O.C.
Mountain Fuel Supply, 1 Murphy SE SE SE 27-17n-104w
Drlg. 3,872 ft.
Gus Pongratz et al, 1 Clark .... NW NE 22-19n-104w
Drlg. 2,600 ft.
Red Desert Corp., 1 Aspden . NW SW NW 34-18n-103w
Drlg. 260 ft.
Vermillion Oil, 2 Govt. ..... SW SW SW 7-12n-99w
Drlg. 2,880 ft.

Uinta County

Elynor Oil, 1 ..... CEL SE SE 6-18n-116w
Drlg. 307 ft.
Spring Valley Pet. Co., 13 .... CSL SE SE 22-15n-117w
Drlg. below 2,000 ft.

Washakie County

Paul Boether, 1 Govt. ..... SW SW NW 4-47n-90w
S.D. 2,467 ft. in Therm. sh.; cmtd. 7-in. at 2,317 ft.

Weston County

Charles Stough, 12 ..... CWL SW NW 4-46n-63w
Drlg. 150 ft.
Pierre LaFleishe, 1 Dober ... NE NE NE 21-45n-63w
6 mi. S of Osage field; spd. to 150 ft. and set 10¾-in.
Bruce C. Teeter, 1 State ..... SW NE 36-32n-61w
T.D. 2,372 ft.; prep. to run csg. and test Sundance sd. at 982-1,072 ft.
John Brorphy, 1 Hansen .... NW NE NW 13-44n-63w
Drlg. below 300 ft.

MONTANA

Improved conditions in the northern Montana fields were reflected in the May report of the state Oil Conservation Board which showed an increase of 90,830 bbl. in production in May as compared with April, and a decrease of 17,830 bbl. of oil in storage. Kevin-Sunburst accounted for 68,894 bbl., and Cut Bank 17,464 bbl. of the increase. Total for all fields was 608,873 bbl. as against 518,043 bbl. in April. Crude refined in the state was 544,363 bbl., which compares with 369,222 bbl. in April.

Carbon County

R. C. Tarrant, 2 McKay ..... SE NW 4-6s-18e
Drlg. 3,005 ft.

Choteau County

Security Pet. Corp., 1 Johnson..... NE NE 23-26n-3e
T.D. 2,204 ft.; U.R. 6⅝-in.; wtr. in T. Mad. at 2,137 ft.

Fergus County

Tony Co., 1 ..... CNL NE SW 36-22n-17e
Drlg. 105 ft.
E. & M. O. & G., 4 ..... SW SE SW 34-33n-18e
Drlg. 305 ft.

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Glacier County

The only completion in Cut Bank was Glacier Production 1 Yunck Unit, 125 ft. south of CNL 2-34n-5w, a gas well, the first to be completed in the field this year. It gaged 9,000,000 cu. ft., open flow, at 2,563 ft., total depth, from the Cut Bank sand at 2,503-62 ft. First gas appeared at 2,508 ft.

A. R. Pardue, 4 Tribal-171, ... SE SE SE 7-32n-5w
Spdg. 400 ft.; (first report).
Glacier Prod., 1 Dahlquist Unit ..... C 12-34n-5w
Spdg. 210 ft.; (first report).
Glacier Prod., 3 Hall ..... NW SE 35-36n-6w
Loc.; (first report).
Texas, 7 Hinkle ..... NE NW NE 2-34n-6w
Loc.; (first report).
Texas, 3 Bonnett ..... NE SE 8-32n-5w
Loc.; (first report).
Texas, 6 State ..... NW SW 16-32n-5w
Spdg. 95 ft.
Texas, 3 Unit 11 ..... W½ NW SW 11-35n-6w
Drlg. 325 ft.
A. B. Cobb, 1 Teterud ..... NE NE NE 24-37n-5w
Spdg. 400 ft.
Santa Rita O. & G., 11 Tribal ..... NE cor. 16-35n-6w
Drlg. 621 ft.; T. Colo. 595 ft.
Santa Rita O. & G., 3 Govt. ..... NE SE NW 7-32n-5w
Drlg. 2,200 ft.
Steele Creek Prod., 3 Carmen .. SE SE NW 19-34n-5w
Cmtd. 10¾-in. at 445 ft.; T. Colo. 420 ft.
Montana Headlight Oil, 6 Britton NW SW SE 11-34n-6w
Spdg. 90 ft.
Glacier Prod., 1 Coburn Unit... CSL NW NE 9-33n-5w
Drlg. 1,775 ft.
R. C. Tarrant, 3 Hope ..... NE 18-34n-5w
R.U.
R. C. Tarrant, 1 Butler ..... CEL NW SE 15-34n-6w
Drlg. 2,400 ft.
Texas, 8 Unit 9 ..... NW NE 9-32n-5w
T.D. 3,070 ft.; cmtd. 7-in. at 3,068 ft.
Glacier Prod., 5 Bonnett ..... NW SE 4-32n-5w
Drlg. 2,995 ft.; 1,000 ft. O.I.H.
Cobb-Reagan, 4 Jackson ..... SW SW SE 5-32n-6w
R.U.R.

Hill County

Wm. Hanlon, 1 Govt. ..... SW NE 19-37n-15e
Spd. and S.D.

(Continued on Page 103)

Illinois Fields

(Continued from Page 72)

field, Eagleston, 1 Wilkins, NE SW SW 10-2n-3e, was at 2,140 ft. after finding the top of the Ste. Genevieve at 1,312 ft. and the Rosiclare at 1,324 ft.

Completions in the Centralia field were fewer than usual, the majority being in 35-2n-1w, where another 12,000-bbl. well was brought in, Adams, 17-D Copple. Sims, 2 Dunn, W½ NW NE 1-1n-1e, swabbed and flowed 60 bbl. oil and 20 bbl. water in 6 hours and will be plugged back to higher pays. Lee, 1 Keister, NW SE NE 35-2n-1w, found the top of the Devonian at 2,865 ft., with pay at 2,914 ft. After acidizing, it ran 8,134 bbl. and went dead. It is now swabbing.

McKee et al wildcat, 1 Lippert, W½ W½ SW 26-2n-1w, drilled through the Benoist sand from 1,425-39 ft. and is drilling ahead at 1,770 ft.

Centralia Field—Devonian Completions

Gulf, 2 Adams-Schmitz ..... W½ NE SE 2-1n-1w
Flowed 3,598 bbl., acid, 2,888-99 ft.
Shell, 14-C Critey ..... E½ NW NE 2-1n-1w
Flowed 116 bbl. hr., natural, 1,991 bbl., acid, 2,886-2,906 ft.
Shell, 15-C Critey ..... W½ NE NE 2-1n-1w
Flowed 1,000 bbl. 16 hr., natural, 4,271 bbl., acid. 2,893-2,902 ft.
Adams, 17-D Copple ..... W½ NW SE 35-2n-1w
Flowed 12,000 bbl. (estimated), acid. 2,888-98 ft.
Adams, 4-D A. Keister ..... W½ SE NW 35-2n-1w
Flowed 50 bbl. hr., natural, 5,275 bbl., acid. 2,904-14 ft.
Adams, 5-D A. Keister ..... E½ SE NW 35-2n-1w
Flowed 3,260 bbl., acid. 2,910-20 ft.
Gulf, 4 M. Felton ..... E½ SW NE 35-2n-1w
Flowed 4,003 bbl., acid, 2,902-12 ft.
Tuesday Oil, 7 Buehler ..... W½ SW SW 36-2n-2w
Flowed 1,626 bbl., acid. 2,882-2,907 ft.

Other Clinton County Completions

P. Mosebach, 1 B. Schlamann ..... SE SE SE 5-1n-3w
Dry. Elev. 497 ft., Devonian 2,449 ft., T.D. 2,524 ft.
Schiermann et al, 1 F. Huelsmann SE NE NE 20-1n-3w
Dry at 1,467 ft.

Coles County Completion

Carter, 1 J. E. Cobb ..... SW SE 10-13n-7e
Dry. Elev. 667 ft., top Chattanooga 2,920 ft., Devonian 3,022 ft., T.D. 3,226 ft.

Crawford County

Kidd & Thomas, 1 Headley, SE SW SW 8-7n-11w, had a show of gas at 670 ft. It found the Robinson sand at 904 ft., and is drilling ahead at 1,140 ft.

C. Robinson, 1-A D. Walters ....SE NW SE 19-7n-12w
Dry. Elev. 663 ft., top Salem 1,842 ft., Devonian 2,772 ft. ,T.D. 2,962 ft., slight strain at 2,780-90 and 2,944-62 ft. with sulfur water.

De Witt County

Waharp, 1 Short, SE NE SW 6-20n-3e, found the Kinderhook at 1,214 ft., the Devonian at 1,425 ft. and is drilling at 1,460 ft.

Edgar County Completion

S. J. Burkitt, 1 Schoitker ..W½ NW SE 300-16n-11w
Dry. Top Devonian 1,626 ft., T.D. 1,810 ft.

Edwards County Completions

Jarvis Bros., 1-B Wick ..... NW SE NE 24-2s-10e
Pumped 45 bbl. and 50 bbl. water, shot, Bridgeport 1,554-68 ft.

Noah & Morris, 1-B Barnes ... NE NE NE 24-2s-10e
Pumped 30 bbl., shot, Bridgeport 1,580-90 ft.
Superior, 1 G. J. Works ..... SW SW SW 18-2s-11e
Pumped 46 bbl., Waltersburg 2,343-51 ft.

Fayette County

Louden Completions

Texas, 6 A. S. Yakel ..... SE SE SW 6-6n-3e
Pumped 49 bbl., Cypress 1,571-79 ft.
Texas, 8 E. G. McKee ..... NE SW NW 6-6n-3e
Pumped 230 bbl., shot, Cypress 1,505-24 ft., T.D. 1,546 ft.
Carter, 2 A. Miller ..... NE SW SE 8-7n-3e
Pumped 42 bbl., shot, Paint Creek 1,558-85 ft., T.D. 1,600 ft.
Carter, 26 H. Durbin ..... SE SE SE 5-7n-3e
Pumped 132 bbl., shot, Cypress 1,473-1,519 ft., Paint Creek 1,549-72 ft., T.D.
Carter, 1 W. L. Holman ..... SW SE SE 3-8n-3e
Pumped 72 bbl., shot, Cypress 1,485-1,515 ft., T.D.
Carter, 6 Bob Fortune ..... NW SW NE 10-8n-3e
Pumped 198 bbl., shot, Cypress 1,499-1,539 ft., Paint Creek 1,576-85 ft., T.D.
Carter, 1 Sickles ..... NE NW SW 10-8n-3e
Pumped 552 bbl., shot, Cypress 1,487-1,525 ft., Paint Creek 1,572-1,601 ft., T.D.
Carter, 13 Tom Wright ..... NW NE SE 20-8n-3e
Pumped 168 bbl., shot, Cypress 1,488-1,537 ft., Bethel 1,580-88 ft., T.D.
Carter, 3 Laura McClain ..... SW SW SW 33-8n-3e
Pumped 378 bbl., shot, Cypress 1,472-1,524 ft., Paint Creek 1,529-67 ft., T.D.

Jefferson County Completions

Carter, 8 Carl Hall ..... S½ S½ NE 4-1s-2e
Pumped 161 bbl., shot, Benoist 1,952-64 ft., T.D.
Hughes Petroleum, 1 Self ..... SW SE SE 10-1s-2e
Dry. Top Benoist 2,029 ft., Aux Vases 2,122 ft., Ste. Genevieve 2,142 ft., T.D. 2,155 ft.

Lawrence County

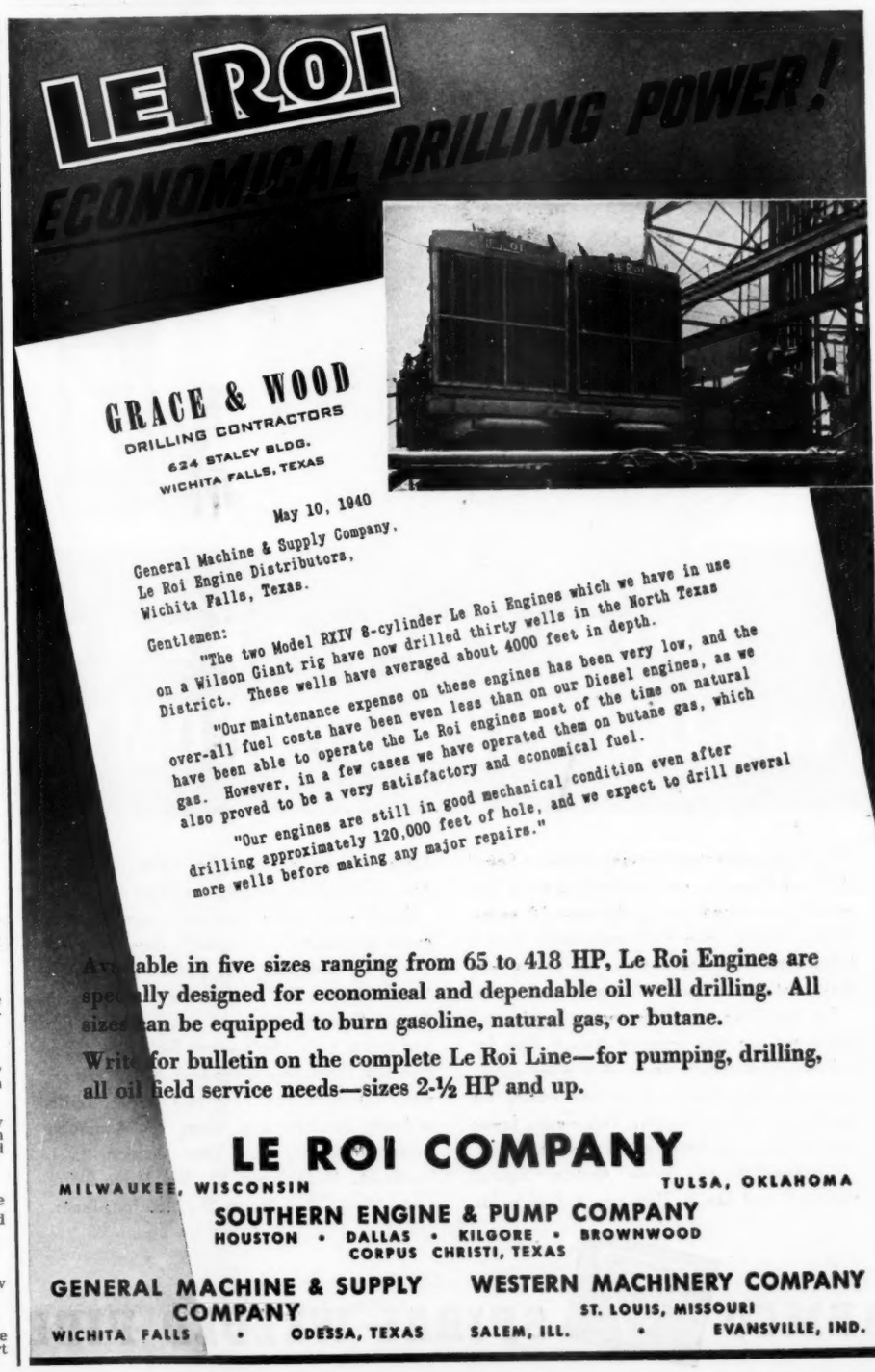
Huff et al, 1 French, SE NE SE 33-2n-13w, had water in the McClosky at 2,677 ft. Tops recorded were: Palestine 1,900 ft., Menard 1,951 ft., Waltersburg 1,994 ft., Tar Springs 2,068 ft., Glen Dean 2,148 ft., Golconda 2,256 ft., Renault 2,566 ft., and Ste. Genevieve 2,672 ft.

Huff et al, 1 French ..... SE NE SE 33-2n-13w
Dry. T.D. 2,677 ft.

Madison County

Owners advise that Corbett et al, 1 Keller C SE SE 7-3n-8w is bottomed at 1,285 ft. It had Devonian at 1,253-77 ft. and is showing free oil with no water.

R. Jones & Barnes, 1 Early ..... NW NW NE 30-6n-5w
Dry. Top Devonian 1,820 ft., show 1,844-48 ft., T.D. 1,914 ft.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SALEM, ILL. • EVANSVILLE, IND.

Marion County

Picard, 1 West, NE NE SE 35-2n-1e, west of the Salem field, had Salem limestone at 2,435 ft., Warsaw at 2,705 ft. and Osage at 2,860 ft. It is drilling ahead at 3,365 ft. and is running low. Max Pray's test to the north of the Tonti field was dry in the McClosky.

Max Pray, 1 Thurman ..... SW SE SW 15-3n-2e
Dry. Base Penn. 1,400 ft., top Cypress sand 1,990 ft., Paint Creek Stray 2,089 ft., Ste. Genevieve 2,255 ft., T.D. 2,315 ft.

Salem Field—Devonian Completions

Big Four, 1 Chaffin ..... NW NE NW 9-2n-1e
Pumped 10 bbl., and 200 bbl. water, top Devonian 2,950 ft., T.D. 3,012 ft.
Harvey Oil, 11 Hagy ..... NE SE SE 33-3n-2e
Flowed 3,060 bbl., acid, 3,525-46 ft.
Blackstock, 5-C M.&I.R.R. ..... SW SE NW 20-2n-1e
Flowed 85 bbl., shot and acid, 3,440-76 ft.
Magnolia, 37 D. A. Shanafelt ..... NE NE NW 21-2n-2e
Flowed 753 bbl., acid, 3,445-3,519 ft.
Magnolia, 111 J. H. Young ..... SW SE SW 21-2n-2e
Flowed 1,035 bbl., acid, 3,508-27 ft.
Texas, 27 D. Young ..... SW SE NW 21-2n-2e
Flowed 1,005 bbl., acid, 3,497-3,529 ft.
Ohio, 34 C. E. Loyd ..... NW NW SE 28-2n-2e
Flowed 1,990 bbl., acid, 3,464-76 ft.
Texas, 17-C Kleinschmidt ..... NW SW NE 28-2n-2e
Flowed 706 bbl., acid, 3,490-3,520 ft.
Texas, 17 F. Lee ..... SE SE SW 28-2n-2e
Flowed 350 bbl., acid, 3,443-71 ft.
Texas, 20 D. Stroup ..... NE SW SE 30-2n-2e
Flowed 630 bbl., acid, 3,369-3,409 ft.
Texas, 23 T. Stroup ..... SW SE SW 30-2n-2e
Flowed 1,007 bbl., acid, 3,384-3,426 ft.
Texas, 16 W. Stroup ..... NE NE NW 31-2n-2e
Flowed 750 bbl., acid, 3,362-3,400 ft.
Texas, 18 S. Stonecipher ..... SW SW SE 32-2n-2e
Flowed 950 bbl., acid, 3,415-51 ft.
Texas, 19 S. Stonecipher ..... SE SE SW 32-2n-2e
Flowed 1,010 bbl., acid, 3,411-28 ft.
Texas, 20 S. Stonecipher ..... SW SE SW 32-2n-2e
Flowed 850 bbl., acid, 3,359-3,410 ft.
Texas, 21 William ..... SE SW SW 32-2n-2e
Flowed 1,405 bbl., acid, 3,320-62 ft.
Texas, 11 S. M. McCoy ..... SE SE NW 33-2n-2e
Flowed 775 bbl., acid, 3,450-78 ft.
Texas, 11 S. Shereshoveck ..... SE SW NW 33-2n-2e
Flowed 400 bbl., acid, 3,469-3,513 ft.
Texas, 9 H. Corbin, Jr. ..... NW NW NW 5-1n-2e
Flowed 1,401 bbl., acid, 3,330-58 ft.
Texas, 9 C. Reed A ..... NE NE NW 5-1n-2e
Flowed 902 bbl., acid, 3,350-75 ft.
Texas, 15 H. Smail ..... NE NE NE 5-1n-2e
Flowed 1,003 bbl., acid, 3,449-82 ft.
Texas, 9 C. F. Bundy ..... SE NW SW 6-1n-2e
Flowed 1,504 bbl., acid, 3,370-3,422 ft.

Other Salem Completions

Shell, 11 Young heirs ..... SW SE SE 20-2n-2e
Pumped 130 bbl., P.B. from 2,063 ft. to 1,873 ft.
Benoist 1,734-77 ft., Aux Vases sands 1,792-1,810 and 1,823-60 ft.
Texas, 11 E. Hays ..... SE SW SE 33-2n-2e
Pumped 52 bbl., acid, McClosky 2,048-60, 68-81 and 94-2,100 ft.
Texas, 61 City of Centralia ..... SE NW NE 4-1n-2e
Pumped 45 bbl., shot and acid, McClosky 2,088-93 ft., T.D. 2,098 ft.
Texas, 8 C. Bundy ..... SW SW NE 6-1n-2e
Flowed 250 bbl., Benoist 1,796 ft., Aux Vases 1,814 ft., T.D. 1,840 ft.
Texas, 17 C. Friedrich ..... SE NE SW 6-1n-2e
Pumped 301 bbl., shot, Benoist 1,807 ft., Aux Vases 1,842 ft., T.D. 1,862 ft.
Texas, 18 C. Friedrich ..... NW NE SW 6-1n-2e
Flowed 175 bbl., shot, Benoist 1,808 ft., Aux Vases 1,857 ft., T.D. 1,869 ft.
Texas, 15 G. Johnson ..... SW NW SE 6-1n-2e
Flowed 329 bbl., Benoist 1,761 ft., Aux Vases sands 1,793-1,834, 39-57, 58-67 ft., Ste. Genevieve 1,867 ft., T.D. 1,870 ft.
Ohio, 17 R. C. Murray ..... SW NE SW 7-1n-2e
Pumped 120 bbl., McClosky 2,042-49, 53-58, 62-72 ft., T.D. 2,072 ft.

Monroe County Completion

Maroney, 1 Krause ..... S½ NW SW 30-3s-7w
Dry. Old well d.d. from 600 to 950 ft.

Montgomery County

Topf et al's wildcat, SE SE 13-9n-4w, northwest of Hillsboro, had a hole full of water at 1,175 ft. and is drilling ahead at 1,402 ft.

Randolph County

Anderson, 1 Cassant, SW NW SW 16-7s-7w, near the shore of the Mississippi west of Chester, had Aux Vases at 218 ft., Ste. Genevieve at 310 ft., Fredonia at 348 ft., St. Louis at 433 ft., Salem at 560 ft., Warsaw at 784 ft., and Osage at 916 ft. It is drilling at 1,102 ft. Six miles east of Chester in the NW NE 25-7s-6w, Christian & Wagner, 1 Waltemaier, had the Aux Vases at 823 ft., and was drilling at 870 ft.

Richland County Completions

DeKalb, 3-C Schilling ..... SE SW SE 32-4n-9e
Pumped 278 bbl. and 30 bbl. water, Cypress 2,599-2,603 and 2,609-12 ft., T.D. 2,614 ft.
Pure, 1 Wachtel Consol. ..... W½ SW SW 7-4n-10e
Flowed 1,064 bbl., natural, McClosky 2,928-35 ft., T.D. 2,965 ft.

Tazewell County Completion

H. V. House, 1 Greening ..... NW NW SE 28-24n-2w
Dry. Top Silurian 1,235 ft., T.D.

Wabash County Completions

Tide Water, 6 Elkins ..... SE SE SE 30-2s-13w
Pumped 120 bbl., Cypress 2,468-79 ft.
Hayes & Wolf, 1 Reed ..... NW SE NE 4-1n-13w
Pumped 150 bbl., acid, McClosky 2,697-2,704, 12-18 water, 39-42 ft. (water), T.D. 2,902 ft., P.B. to 2,703 ft.
Bareder et al, 2 H. Summers ..... NW SW NW 3-1n-13w
Dry, acid, McClosky 2,679-85 ft., T.D. 2,701 ft.
Bartlett, 1 Stansfield ..... SW SE SE 19-2s-13w
Pumped 19 bbl., Biehl 1,717-36 ft.

Washington County Completion

Gulf, 1 Buhl ..... NW SE SW 23-1s-1w
Flowed 660 bbl. oil and 79 bbl. water, Benoist, 1,530-38 ft.
Magnolia, 13 O. W. Francis ..... SE SW NE 22-3s-3w
Dry. Cypress 1,120 ft., Paint Creek 1,217 ft., Benoist 1,292 ft., T.D. 1,310 ft.

Wayne County Completions

Pure, 2 J. W. Hubble A ..... W½ NW NW 33-2n-8e
Pumped 225 bbl., acid, McClosky 3,015-19 ft., T.D. 3,105 ft.
Pure, 2 Powell Consol. ..... W½ SW SW 4-1n-8e
Flowed 128 bbl., acid, McClosky 2,995-3,000, 3,081-84 ft., T.D. 3,095 ft.
Duncan, 1 H. Taylor ..... S½ SE NE 33-1s-7e
Pumped 30 bbl., T.D. 3,332 ft., P.B. to 3,277 ft.
Weinert, 4 Muhlbach ..... N½ SW NW 34-1s-7e
Flowed 300 bbl., McClosky 3,272-80 ft., T.D. 3,304 ft.

White County Completions

Nation Oil, 1 McIntosh ..... SW NW NW 31-3s-8e
Dry, McClosky 3,364-90 ft.
Sun, 7 E. R. Greathouse ..... SW SW SE 33-4s-14w
Flowed 218 bbl., 2,885-97 ft.
Sun, 4 H. G. Garner ..... NE SE SW 1-5s-10e
Flowed 131 bbl., McClosky 2,991-97½ ft.
Exchange, 8 N. Storms ..... SW SE NW 14-6s-9e
Pumped 180 bbl. and 25 bbl. water, Waltersburg 2,238-69 ft.
Skelly, 6 Storms ..... SE SW NW 14-6s-9e
Pumped 130 bbl., Waltersburg, 2,230-61 ft.
J. W. Carter et al, 1 Green Star ..... NW SW NE 25-6s-8e
Pumped 35 bbl. and 30 bbl. water, Hardinsburg 2,516-39 ft.
Skelly, 8 Storms ..... SW SW NW 14-6s-9e
Pumped 63 bbl. and show water, Waltersburg 2,225-54 ft.
Kingwood, 1 Paul Martin ..... NW SW NE 13-7s-8e
Pumped 36 bbl. and 35 bbl. water from Tar Springs. Tops: Waltersburg 2,177 ft., Tar Springs 2,244 ft., Hardinsburg 2,374 ft., Cypress 2,573 ft., Paint Creek 2,681 ft., Benoist 2,780 ft., Aux Vases 2,834 ft., Ste. Genevieve 2,856 ft., Fredonia 2,901 ft. (water), Salem 3,465 ft., Warsaw 3,648 ft., Chattanooga 4,595 ft., Devonian 4,888 ft., Dutch Creek 5,155 ft., T.D. 5,225 ft. Squeezed and shot at 2,242-58 ft. in Tar Springs.

MISCELLANEOUS FIRST REPORTS

Adams County

Menne et al, 1 H. Summers ..... NW NW SW 13-1n-9w

Effingham County

Kingwood, 1 Ross Martin ..... E½ NE SE 14-6n-5e

Gallatin County

Fields et al, 7 Green ..... SW SE SE 12-9s-9e

Montgomery County

Bahler Inv., 1-D Street ..... SE SE NW 31-11n-5w

Shelby County

LeRoy Trulock, 1 Homer Lantz ... SE SE SE 36-13n-2e

Washington County

J. G. Buell, 1 H. R. Doan ..... NE NW SE 32-2s-4w

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ARMCO SPIRAL WELDED PIPE

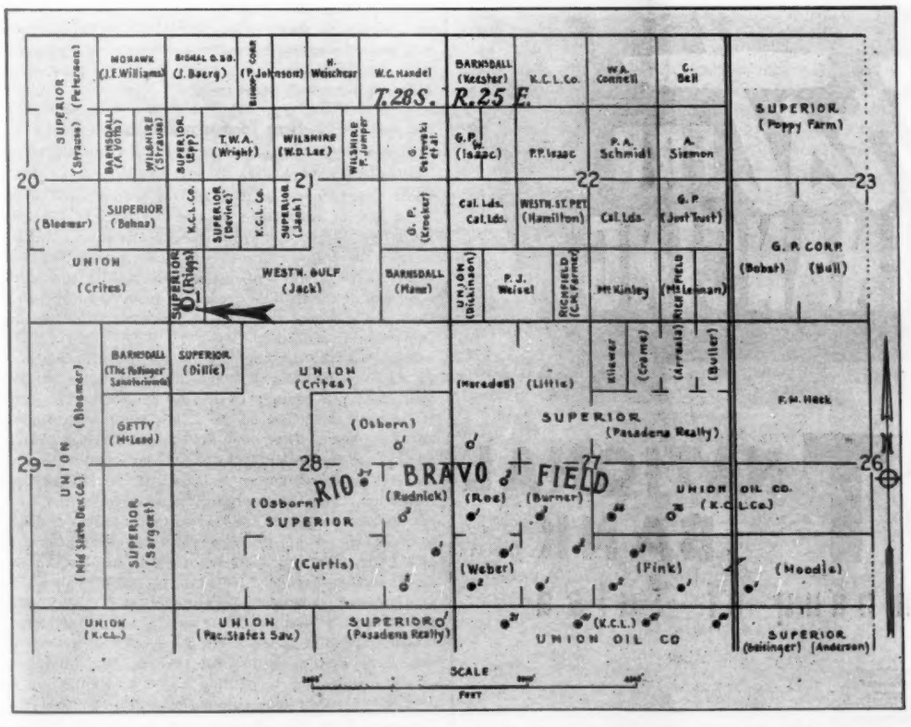
California Field Report

By L. P. STOCKMAN

Field Development Maintains Production; No Discoveries

LOS ANGELES, Calif., July 8.—Ten months have gone by since discovery of the Paloma field of Kern County by Western Gulf Oil Co. and unless some discovery is made within the next 2 months it will be a full year since a major discovery has been made in California. Several small fields have been found during this period but nothing of the first magnitude has been uncovered since last August. It is always hazardous to say that no wildcat in the state shows unusual promise because the status of a wildcat can change over night but right at this moment one can say with some assurance that we have entered into the last half of 1940 without a single discovery of primary importance. Texas, 1 Southern Pacific, in the Cantua district of Fresno County appears headed for the abandonment list in the near future as it has refused to respond with a satisfactory production. This wildcat, located in 23-17-15, is bottomed at 10,116 ft. but has been plugged back to 9,413 ft. On a test early this week the well flowed 12 bbl. of 54-gravity oil cutting 85 per cent and 209,000 cu. ft. of gas daily. The well has since been shut in and shows a tubing pressure of 1,300 lb. and a casing pressure of 1,750 lb. This is the best-looking well that has been drilled in the Cantua district but it is still far from completion. It is too good to abandon all leases and for that reason it is quite probable that Texas will drill at least another test in the immediate locality. West and north of 1 Southern Pacific of Texas Co., A. T. Jergins Trust has been attempting to complete 1 Cheney in 29-14-13 for several weeks without success. This well was drilled to 9,225 ft., but has been plugged back to 7,350 ft. and the liner pulled down to 6,750 ft. The company has since redrilled the hole, but this well which some thought almost assured of production is still an enigma and does not look any too hot at the present time. During the course of work the well showed some oil sand in the top of the Cretaceous but instead of stopping the company decided to go ahead and make a deep test before making a production test. Gas traps and tankage were erected several weeks ago but to date this equipment has been unused. This is the only well at present that shows any promise if a wildcat in this condition can be considered as having promise.

Although no new fields have been discovered for almost a year, Honolulu Oil Corp. may offset this unfavorable condition by finding a new productive zone in the Buena Vista Hills section of the Midway-Sunset field of Kern County. This company has passed the 5,300-ft. level without finding anything of importance in 25-P in 10-32-24 but this deep test still has several thousand feet to go before it reaches the doubtful stage. This wildcat is believed to have the best chance of resulting in commercial production principally because it is located on a highly productive anticline. Structural conditions are ideal and for this reason it is believed quite probable that geological conditions will conform with general expectations. This deep test will bear watching because the well has considerable merit and may find a deeper accumulation above the Stevens sand which has been found productive in other San Joaquin basin fields. In the Kreyenhagen district of Fresno County, Continental Oil Co. has passed the 5,200-ft. mark in a wildcat being drilled in 4-22-16 but is not yet deep enough to be considered conclusive. Seaboard Oil Co. is going back into the Blackwells Corner section of Kern County and will drill another well in an area that looks promising but which up to date has failed to respond to extensive exploration. Amerada Petroleum Corp. drilled a series of tests in this area more than a year ago and while a small amount of oil sand was found it was not thick enough to result in commercial production. Superior Oil Co., 1 Brandt, southeast of the Greeley field of Kern County, is nearing the critical depth and at 11,175 ft. should begin to show something if it is to result in production. In the Delano district of Kern County, Tide Water Associated Oil Co. is rotating ahead in a hard shale at 9,300 ft. but still has considerable hole to make before a final conclusion is reached.



The anxiety shown by operators over the possibility of extensive drilling in the Rio Bravo field of Kern County, California, is revealed by this map showing the large number of small holdings north and northwest of present production. The Rudnick, Roe, and Burner leases of Superior Oil Co. are the highest structurally in the field to date

Crude-Oil Production

State production of crude oil during June was slightly higher than the output during May. Production during this month was the highest recorded during the first half of 1940 and was about 3,000 bbl. daily higher than production in May. Current daily production of leading California fields follows:

	Barrels
Wilmington	85,850
Midway-Sunset	53,125
Kettleman Hills	44,250
Long Beach	43,600
Ventura Avenue	34,950
Coalinga	27,150
Huntington Beach	23,375
Santa Fe Springs	25,350
Montebello	21,250
Santa Maria Valley	18,100

Wilmington

The Wilmington field headed the completion list with four new wells included in which were three wells that showed an aggregate initial potential production of 14,649 bbl. These three wells were 142, 143 and 146 of Union Pacific Railroad Co., completed with a combination of 6⅝ and 8⅝-in. liners with the former on the bottom, 142 was brought in flowing 1,455 bbl. of very clean 30.8-gravity oil daily. On a short test, this well established a potential of 8,016 bbl. per day. The well was drilled to 4,017 ft. but was plugged back to 3,978 ft. before completion. The combination liner which was cemented through perforations at 3,039 and 3,560 ft. carried perforations at 3,046-3,150, 3,180-3,327, 3,357-3,443, 3,562-3,664, 3,684-3,717, 3,727-97, 3,822-95 and 3,915-71 ft. Production was flowing through a string of 2½-in. tubing with a packer at 3,537 ft. Union Pacific Railroad Co., 143, was completed flowing 1,360 bbl. through a restricted bean from 3,984 ft. but on a short test established a potential capacity of 3,278 bbl. daily. This well was finished with 1,131 ft. of 7-in. liner and 399 ft. of 5-in. liner on the bottom and was cemented through perforations at 3,568 ft. Perforations open to production were at 3,570-3,648, 3,663-3,745, 3,759-3,832, 3,894-3,932 and 3,947-79 ft. The 3,555 ft. of 2½-in. tubing was free and did not contain a packer. This well was completed in the lower Terminal.

Union Pacific, 146, was brought in flowing 1,220 bbl. of clean 32.7-gravity oil daily from 4,043 ft. but established a potential capacity of 3,355 bbl. The hole was finished with an 11¾-in. water string cemented at 2,616 ft. and 4,035 ft. of 8⅝-in. liner including 358 ft. of 6⅝-in. on the bottom. The cement points were through perforations at 3,118, 3,666 and 3,818 ft. Perforations opposite the productive formation were at 3,125-3,240, 3,260-3,323, 3,338-88, 3,400-45, 3,455-3,519, 3,668-3,770, 3,820-60, 3,920-63 and 3,983-4,035 ft. The 2½-in. tubing has a packer at 3,642 ft. Atlantic Oil Co. completed a Ford zone well this week when 16 Harbor was brought in pumping 131 bbl. of relatively clean 29.1-gravity oil per day from 5,756 ft. This well has 10¾-in. casing cemented at 2,610 and 5,756 ft. of 7-in. landed on bottom and cemented through perforations at 5,653 ft. Perforations open to production are at 5,686-5,756 ft. This well is located in the town-lot section west of the Ford plant near Anaheim and Eubank streets and is in an area where the Ford zone has not been found especially

prolific. In the Long Beach Harbor section of the Wilmington field, the Ford zone is expected to be found highly productive but development is being held back as a conservation and curtailment measure. Continental Corp. has completed its ninth producer on the Los Angeles County Flood Control Channel at 3,096 ft. but no gage has yet been taken. It should be good for around 1,000 bbl. per day. L.A.C.F.C., 10, has been spudded in by this company and preparations are under way to start immediate drilling.

Coalinga

Two excellent wells were completed in the Southeast Coalinga field of Fresno County this week and another good well was finished in the Northeast Coalinga field. The latter was 71-30-B of Bandini Petroleum Co. located in 30-19-16. It was brought in flowing 575 bbl. of clean 27.4-gravity oil per day through a 32/64-in. bean behind a tubing pressure of 1,075 lb. and a casing pressure of 1,250 lb. This well was finished late last week but was shut in immediately subsequent to completion due to inadequate tankage. It is officially completed this week at 8,256 ft. The hole was finished with a 7-in. water string cemented at 8,182 ft. and 90 ft. of 5½-in. drillable liner landed on bottom and including 60 ft. of perforations. The hole was drilled on contract by Drilling & Exploration Co. Top of the Kreyenhagen was cored at 7,036 ft., top of the glauconitic was logged at 8,118 ft., top of the grit zone was found at 8,156 ft. and top of the Gatchell sand was cored at 8,211 ft. The completion of Bandini's new well is of special interest as Wilshire Oil Co., the parent company, has been having considerable trouble shutting off water. The last cement job appears to have held in good shape, however, and liner and tubing have been run in preparatory to completion. Both wells are located in 30-19-16 in the southern end of the Northeast Coalinga field and north of the northern tip of the Southeast Coalinga field.

R. S. Lytle, who is operating as agent for the Doheny interests, Honolulu Oil Corp. and Seaboard Oil Co., completed another excellent well when 77-18-F in 18-20-16 was finished flowing 1,935 bbl. of clean 30.1-gravity oil and 770,000 cu. ft. of gas per day from the productive Gatchell zone with bottom of the hole at 7,900 ft. This new well, which topped the Kreyenhagen at 6,383 ft., top of the glauconitic at 7,500 ft. and top of the productive Gatchell sand at 7,610 ft. is producing from 290 ft. of formation. The initial registered by this well does not represent its maximum capacity as it was brought in flowing through a 25/64-in. bean behind which it shows a tubing pressure of 900 lb. and a casing pressure of 1,200 lb. In these wells drilled by Lytle, the Doheny interests hold a 50 per cent interest and Honolulu Oil Corp. and Seaboard Oil Co. each have a 25 per cent interest. Superior Oil Co., one of the most progressive operators in the state, completed another new well in the Southeast Coalinga field this week when 5-B Cagle in 6-20-16 was brought in flowing 1,305 bbl. of clean 30.1-gravity oil and 800,000 cu. ft. of gas daily from the Gatchell zone with bottom of the hole at 7,776 ft. This new well topped the Kreyenhagen at 6,055 ft. and cored the top of the glauconitic and Gatchell zones at 7,191 and 7,284 ft., respectively. This well is producing from 490 ft. of productive Gatchell sand which is the highest saturated oil sand found anywhere in the state up to the present. There are 13 wells drilling ahead in the Northeast and Southeast Coalinga fields below 7,500 ft. at the present time and if normal progress is made it is quite probable that the entire group will be completed within the next few weeks. The number of locations staked and derricks erected indicates that drilling operations will continue at about the current rate.

Cole's Levee—Tupman

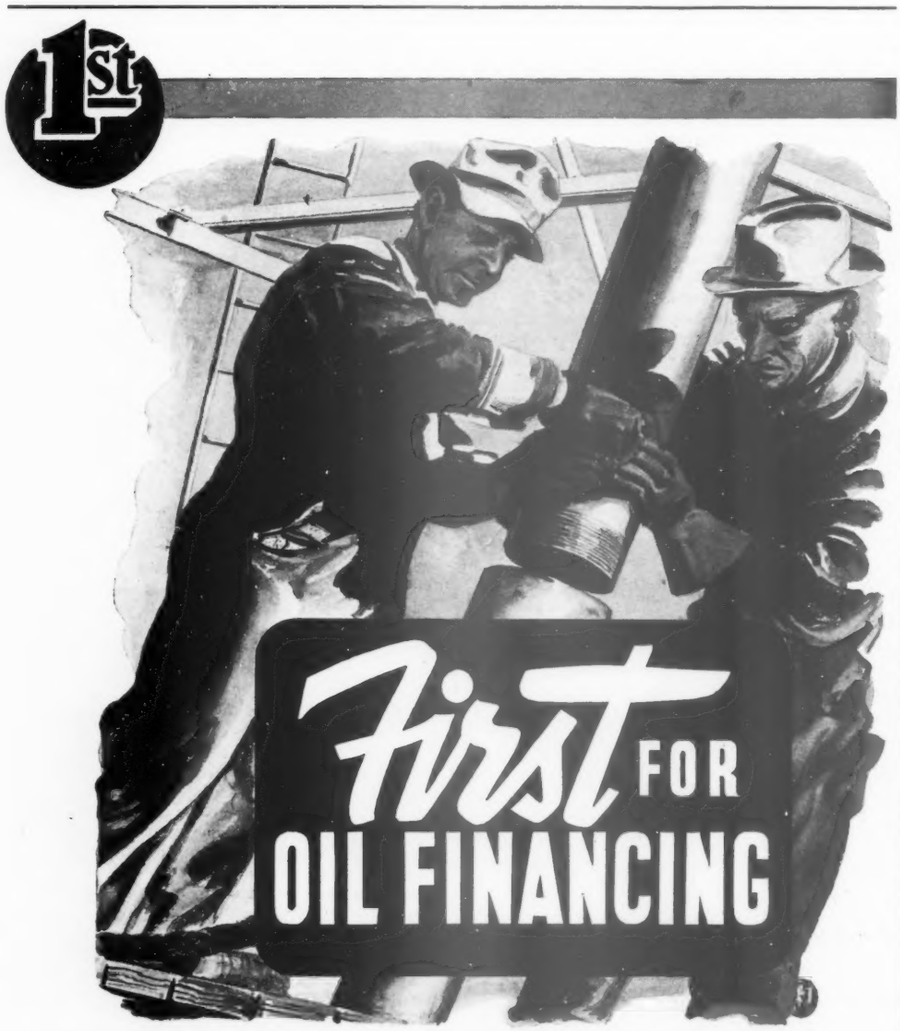
Richfield Oil Corp. completed another excellent well in the Tupman field of Kern County this week when 58-28-A Kern County Land in 28-30-25 was brought in flowing 1,627 bbl. of clean 32.3-gravity oil and 2,700,000 cu. ft. of gas per day from the equivalent of the Stevens sand with bottom of the hole at 9,225 ft. This new well, which was drilled on contract for Richfield Oil Corp. by T. P. Pike Drilling Co., was finished with an 8⅝-in. water string cemented at 8,755 ft. and 497 ft. of 6⅝-in. liner landed at 9,210 ft. and including perforations opposite the oil sand at 8,760-8,845, 8,887-9,055 and 9,097-9,210 ft. Production is flowing through 9,173 ft. of 2½-in. tubing. Richfield Oil Corp., which is working on an aggressive drilling program in the Cole's Levee and Tupman fields, has 14 strings of tools in operation, 12 additional derricks standing and 4 additional grades made which indicates that the company contemplates maintaining the present rate of work. Original plans called for 50 wells during 1940 and 50 during 1941 but it appears quite probable that work will exceed original expectations. The Cole's Levee and Tupman fields were originally believed to be two separate accumulations and recent developments indicate that this theory is probably correct although no dry hole has yet been drilled between the two productive areas. The exact status of these fields should be determined within a relatively short time.

San Joaquin Basin

Shell Oil Co. completed another excellent well in the Ten Section field of Kern County this week when 8-19-A Kern County Land in 19-30-26 was brought in flowing 2,102 bbl. of very clean 35.3-gravity oil and 1,536,000 cu. ft. of gas per day from the Stevens sand with bottom of the hole at 8,190 ft. but the effective depth at 8,097 ft. This new well, which is located in the northwest end of the field, is producing from 52 ft. of formation as the water shutoff was made with 7-in. casing cemented at 8,045 ft.

Standard Oil Co. completed another good Eocene well in the Kettleman North Dome this week when 321-29-J in 29-21-17 was brought in flowing 263 bbl. of 47.3-gravity oil and 10,600,000 cu. ft. of gas per day through a 26/64-in. bean. This new Eocene producer, which is located out in the Huffman or extreme western end of the Kettleman structure, is producing from 367 ft. of formation. The water shutoff was made with 6⅝-in. casing cemented at 10,286 ft. and the hole was finished with 402 ft. of 4¾-in. liner carrying perforations at 10,313-10,653 ft. and 9,997 ft. of 2½-in. tubing. In the same section Standard Oil Co. is drilling ahead in another well scheduled for completion in the Eocene and is making progress. This well is 334-29-J, which is rotating ahead at 10,100 ft. In the southwest quarter of this same section, Union Oil Co. has cemented 7-in. casing preparatory to drilling ahead to completion in 9 King. This well upon completion will be Union's first Eocene well on this 160-acre lease. R. S. Lytle has finished rigging up rotary tools in 5 Felix and should have the bit in this well rotating ahead within the next day or so. This projected Eocene well is being drilled in

(Continued on Page 103)



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North and East Texas

By
R. MARNE SANFORD

Four Discoveries Highlight North Central Texas Play

WICHITA FALLS, Tex., July 8.—The discovery of two new oil fields in North Texas and one in West Central Texas marked one of the most fruitful weeks in several months for the two areas. One of North Texas' new discoveries is a new Fort Worth basin field, it being located on the north rim. The other discovery in the northern tier of counties was at Amerada, 1 Goodpasture in Wilbarger County. West Central Texas' discovery was in Jones County and just north of the Palo Pinto lime-producing Griffin field.

Most recent discovery for North Texas' increasingly active Fort Worth basin area is Sinclair Prairie, 1 Benton, Thomas R. Jackson Survey, about a mile east of the town of Nocona and about 2 miles east of the three-pay Rogers & Rogers field. It is hailed a new discovery since its conglomerate pay section is classified as the same type found in other recent Montague County discovery wells and entirely different from any of the three pay levels in the Rogers & Rogers field.

The well was drilled to a total depth of 5,416 ft. and quit as dry in the Ellenburger of Ordovician last week. Plugging back to a depth of 5,137 ft., the well flowed 81 bbl. of oil in 35 minutes then died early in the week. After only a 5-qt. shot from 5,122-26 ft. the well kicked off to flow 129 bbl. of oil in 20 hours through tubing. As the week closed the well was still being swabbed with operators considering administering another and larger shot.

Wilbarger County Discovery

Amerada, 1 Goodpasture, Section 35, Block 15, H.& T.C. Survey, in the northwestern part of Wilbarger County and 15 miles northwest of Vernon, was reported to have flowed 60 bbl. of oil in 4 hours at the close of the week. The well was drilled to a total depth of 6,717 ft. in the Ellenburger lime and plugged back to a depth of 3,252 ft. and the casing was perforated from that point to 3,230 ft. The total section of 22 ft. was given 80 perforations and the flow was natural. Earlier in the week the well was reported to have flowed 150 bbl. of oil in 5½ hours through ½-in. choke on tubing. Storage was being erected and testing continued as the week closed. The location is on a block assembled at fairly high prices and was thoroughly worked by seismograph prior to the starting of the well. Deep production was thought more likely than shallow, however, only slight shows were encountered between the present plugged-back total depth of 3,252 ft. and the abandoned point of 6,167 ft. The pay was not identified either as a lime or sand and whether the section would be shot or acidized could not be determined.

Clay County Oil Show

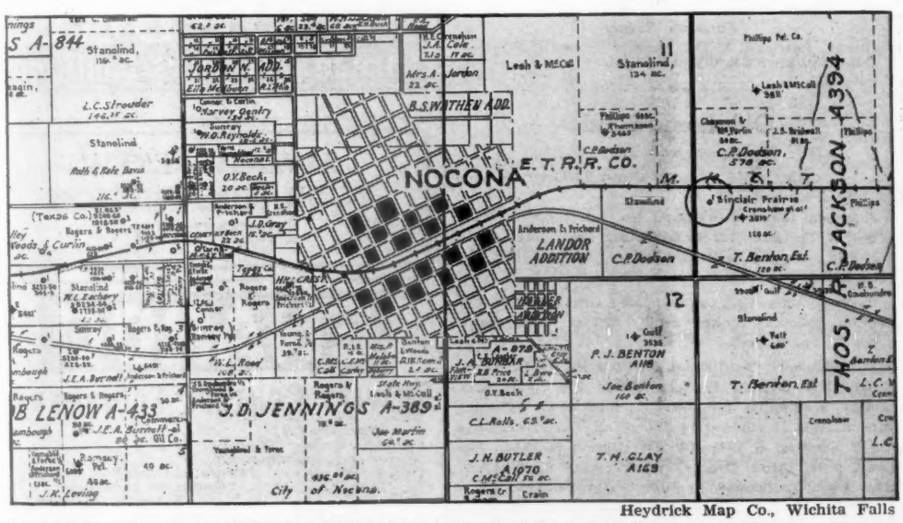
Showings of oil at a deep Clay County wildcat, together with the staking of a new deep wildcat test, held attention in the county at the week's close. In the southeast part of the county E. C. Norwood, 1 Hapgood ranch, Block 61, Marion County School Lands, 5 miles west of the Seay field strike in western Montague County, drilled two oil shows between 5,774 and 5,791 ft. The first section was a sand showing oil from 5,774 to 5,781 ft. and the second was a shaly sand showing oil from 5,785 to 5,791 ft. The sections were not tested, however, and at the close of the week the test was drilling ahead below 5,820 ft.

New wildcat operation for the county is P. M. Wiggins, Jr., and H. M. Horton, 1 W. I. Howard, located 1,400 ft. from the west and 2,325 ft. from the south lines of Block 31, T. J. Belcher subdivision. Contracted to 5,600 ft., it is located 3 miles south of the Halsell field. The top of the Ellenburger lime in the area is about 6,200 ft., thus the contract depth will test only the Upper Paleozoic sections.

Other New Wildcats

Another new wildcat test for the Fort Worth basin area was spudded in Denton County during the week. It is Amon G. Carter, 1 W. P. and A. P. Allen, in the northwest corner Stephen Westbrook Survey, just north of the town of Drop in the western part of the county. The location is just east of the Wise County line and is contracted to 4,000 ft. The 16,000-acre block was assembled during the leasing play of the basin several months ago. The block lies off the southwest flank of the Muenster arch which has an axis in a northwest-southeast direction across the central part of Denton County.

Baylor County was given a new 3,100-ft. operation when Roy I. Carter Drilling Co. staked its 1 Farmer, 467 ft. from the north and west lines of Section 3126, T.E.&L. Survey. The location is about 2 miles south and slightly east of the recently opened Palo Pinto lime field by Hall-Jordan Oil Co. 3 miles east of Rendham. The new test is contracted to the Palo Pinto lime.



The Fort Worth basin area's newest field opener is just east of the town of Nocona in northwestern Montague County. Located about 2 miles east of the three-pay Rogers & Rogers field just west of Nocona, the new discovery is Sinclair Prairie Oil Co., 1 Benton, pay having been drilled in the typical conglomerate found throughout Montague County

NORTH TEXAS COMPLETIONS

Archer County

Boller & Rutledge, 1 J. L. Anderson, 3,204 ft., dry.
L. T. Burns, 1 State Lands, 1,457-67 ft., 10 bbl.
Chapman & McFarlin, 8 L. F. Wilson D, 4,255-4,318 ft., 648 bbl.
Cochran & Cain, 4 S. B. Herron, 788 ft., dry.
Cochran & Cain, 6 Dr. J. A. Little B, 1,360-88 ft., 67 bbl.
Continental, 16 Wilson-McCrory, 4,301-75 ft., 916 bbl.
Cox & Hamon, 4 Dr. J. A. Little, Big, 1,008-23 ft., 38 bbl.
Peterson & DeMontel, 4 John Schildneckt, 4,298-4,344 ft., 1,257 bbl.
Petroleum Prod. and United Prod., 6 J. N. Shephard, 4,292-4,355 ft., 1,070 bbl.

Clay County

J. A. Morgan, 2 Brannon Bros., 349 ft., dry.

Cooke County

Humble, 2 G. H. Hellman, 1,250-56 ft., 106 bbl.
Sanford et al, 5 B. Voth, 1,726-27 ft., 28 bbl.

Jack County

B. C. Gilmore, 1 F. C. Bloodworth B, 577 ft., dry.
T. C. Jones, 8 W. H. Smith, 363-80 ft., 8 bbl.
T. C. Jones, 9 W. H. Smith, 368-88 ft., 11 bbl.
T. C. Jones, 10 W. H. Smith, 356-80 ft., 15 bbl.
Keithley et al, 3 J. M. Bloodworth, 345 ft., dry.

Montague County

Stanolind, 3 W. L. Zachary, 5,278-5,372 ft., 1,577 bbl.
United Prod. and Continental, 2 D. A. Brahman, 3,814-52 ft., 675 bbl.

Wichita County

Continental, 10-B J. L. and T. J. Waggoner C, 3,817-3,978 ft., 178 bbl.
E. C. Oil Co., 1 A. W. Burnside D, 3,917-40 ft., 26 bbl.
S. H. Fagadau, 1 E. M. Barnes C, 4,499 ft., dry.
Falls Refining Co., 2 J. B. Tidwell, 3,830-3,860 ft., 14 bbl.
W. H. Hammon, 1 fee, 3,998-4,072 ft., 584 bbl.
Hanlon-Buchanan, 15 Fassett & Tuttle G, 4,040-80 ft., 407 bbl.
W. A. Krohn, 7 Jennings A, 88-92 ft., 2 bbl.
W. A. McClure et al, 1 Ed Shlaffke, 462 ft., dry.
Mogren & Anderson, 11 C. A. Mertins, 929-31 ft., 10 bbl.
Mogren & Anderson, 12 C. A. Mertins, 1,015 ft., dry.
Mogren & Anderson, 13 C. A. Mertins, 924-40 ft., 26 bbl.
S. H. Walton, 18 Gulf Tank Farm, 882 ft., dry.

Young County

Bohner et al, 11 Prideaux, 521-35 ft., 21 bbl.
Charles B. King, 13 C. W. Johnson, 618 ft., dry.
Ranell Oil Co., 4 J. W. Jack C, 552-58 ft., 4 bbl.
Stafford et al, 1 King, 704 ft., dry.

EASTERN TEXAS

DALLAS, Tex., July 8.—Indications of renewed activities in the little-developed Flag Lake and Rowe & Baker fields in northwestern Henderson County, additional activity for the deep Chapel Hill field in Smith County, and the staking of two new wildcat locations, held the attention in the eastern Texas district as the week closed.

Completion of the first flowing well in the Rowe & Baker field of northwestern Henderson County is expected to start a new drilling program by operators holding nearby acreage. The new well, the third for the small field which lies just northeast of the Flag Lake field, was Manning & Pickens, 1 T. M. Bell, Muckelroy Survey, southwest of the discovery well in the field. An official gage of 158 bbl. of oil in 24 hours was reported for the well, production being through casing perforations from 3,184-87 ft.

Manning & Pickens are scheduled to start their 2 Bell, 660 ft. west of the producer. No new tests have been definitely located, however, due to the small leases in the area, several are expected to be located within the month. No outlet has yet been secured for oil from

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the field and this has hampered development considerably.

Southwest of the Rowe & Baker field and in the Flag Lake field, Hines & Hancock, Dallas, are preparing to start the first of three tests on their Dillard lease in the Jeffries Survey. Work on the lease has been delayed for several months due to litigation. The first of the three wells is to be 3 Dillard. 460 ft. west of the 1 Dillard and a location southwest of Hunt & McMillan, 2 Dillard. Richards & Holloway, Inc., Tyler, Tex., have the contracts for the development program.

Chapel Hill Field

An extensive drilling campaign for the 7,500 and 8,000-ft. Glen Rose and Pettit lime producing field at Chapel Hill in Smith County is expected due to short-term leases and recent unitization efforts. One of the largest leaseholders in the field is reported to have more than 50 lease expirations prior to the end of 1941, while many other operators in the area have several short-term leases. Chapel Hill production extends along a north and south trend for a distance of about 4 miles, the 7,500-ft. distillate production being in the north end of the field and the 8,000-ft. oil production being on the south end of the field. The Pure Oil Co. recently entered the field with the staking of two locations and the Sun Oil Co. and Shell Oil Co., Inc., have united to develop several leases in the field, two locations already having been staked under the joint partnership. Wells in the Chapel Hill field cost about $80,000 each to drill.

New Wildcat Locations

New operations were staked in both Henderson and Freestone counties during the week, both contracted to the Woodbine sand. Henderson County's wildcat is Bill LaRue of Athens et al, 1 Cora Rogers, located 330 ft. from the south and west lines of the Alexandro De La Garza Survey. It is on a 100-acre tract which is a part of a 3,600-acre block reported given for the test.

The Freestone County test was staked in the Stewards Mill area and about 4 miles north of the town of Fairfield. It is L. F. Grey, 1 O. B. Utley, 467 ft. from the north and east lines of a 232-acre tract in the S. J. Claypool Survey 134. The test is on a 4,600-acre block and is reported backed by Arkansas Fuel Oil Co. That company did considerable geophysical exploration in the area.

EAST TEXAS FIELD COMPLETIONS

(1-hour gages)

Upshur County—Longview Area

B. F. Phillips, 5 C. B. Everett, 40 bbl., 3,607-10 ft.

Rusk County—Joiner Area

Gant-Garvin-Waggoner, 34 Moore estate, 11 bbl., 3,542-85 ft.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour gages)

Anderson County

Long Lake field: H. L. Hunt, 2 W. V. Keeling, 115,000,000 cu. ft. gas and 18 bbl. distillate, 5,302-24 ft.

Henderson County

Rowe & Baker field: Manning & Pickens, 1 T. H. Bell, 158 bbl., 3,182-95 ft.

Kaufman County

Wildcat, Bateman & DeArman, 1 General American Life Insurance Co., dry at 3,036 ft.

Oklahoma Fields

(Continued from Page 86)

set 7-in. casing 2,618 ft., total depth 2,800 ft., pumped 20 bbl. of oil daily.

Stephens County: Bristow's No. 1-B Dameron, NW NW SW Section 25-2s-6w, Woolsey area, total depth 1,970 ft., plugged back to 1,565 ft., acidized, dry and abandoned.

Carter County: Carl Carter's No. 1 Orme, SW SW SW Section 34-3s-3w, broken sand 1,326 ft., total depth 1,729 ft., abandoned.

Miscellaneous: Continental Oil Co.'s No. 12 DeLodge, SW NW Section 17-25-2e, Ponca City pool, Kay County, Mississippi lime 3,750 ft., total depth 3,754 ft., shot 3,728-54 ft., flowed 14 bbl. of oil. Carter Oil Co.'s No. 2 Boohrer, C W½ SW SW Section 16-25-3w, Lamont pool, Grant County, Wilcox sand 5,452-64 ft., total depth, abandoned. Republic Natural Gas Co.'s No. 1 Curtis, NE NE SW Section 16-6n-16ecm, Hugoton field, Texas County, total depth 2,805 ft., gaged 17,000,000 cu. ft. of gas. Penny's No. 1-A Osage, SE NE SW Section 15-24-8, Osage County, total depth 2,591 ft., pumped 102 bbl. of oil.

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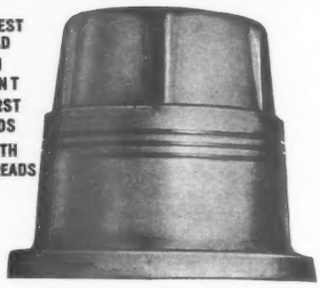

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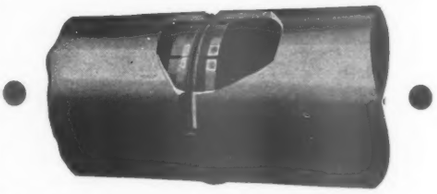

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California Reserves Maintained By Intensive Exploration

(Continued from Page 40)

12-year period from 1920 to 1931, inclusive, the discovery of 28 oil fields and gas fields consumed at least 1,512 geologist-years or an average of 54 years of a geologist's life per field. From 1932 to 1939, inclusive, 30 oil fields and gas fields were found as the result of over 1,060 geologist-years and more than 130 seismograph-party years. Allocating credit for discoveries in accordance with division in the above table, and dividing the combination discoveries equally, geologists were responsible for finding 15 oil fields and gas fields at the rate of over 70 geologist-years per field and seismograph parties discovered 15 oil fields and gas fields at an average of over 9 party-years per field. If the average cost of a geologist is $500 per month and the average cost of operating a seismograph crew is $8,000 per month, the ratio of cost of discovery is approximately 1 to 2 in favor of the geologist. Converting geologist years into geological cost, each geological-field discovery cost $324,000 between 1920 and 1931, and $420,000 from 1932 to 1939, inclusive, whereas geophysical cost of seismograph discoveries averaged $864,000 per field.

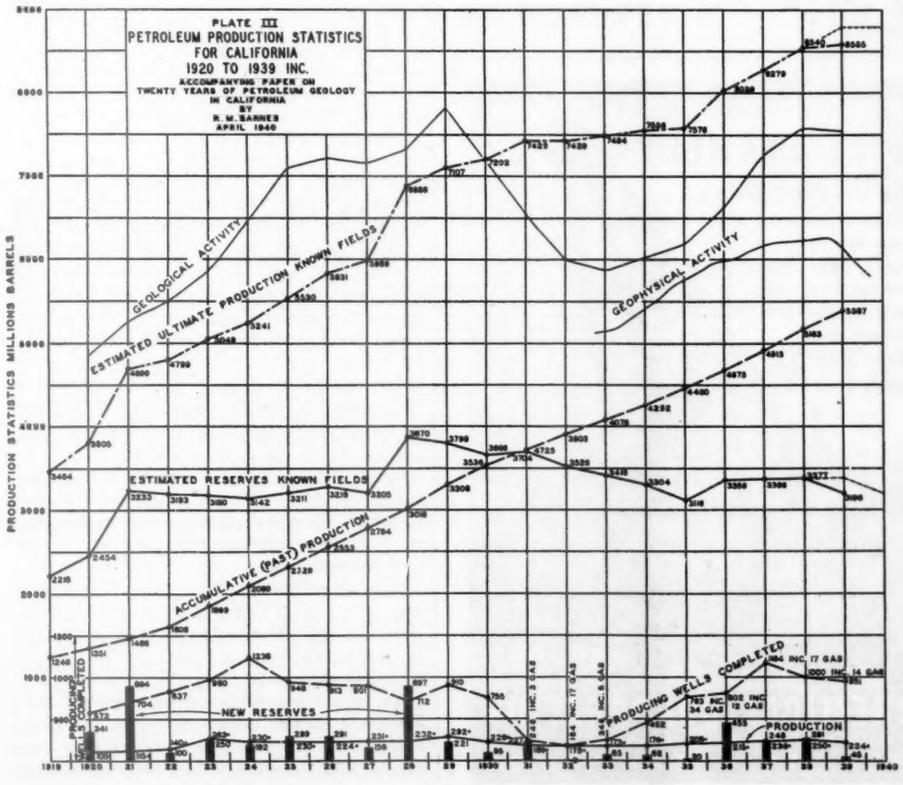
Over 3,000 dry holes were drilled during the time of discovery of 58 oil fields and gas fields in the 20-year period from 1920 to 1939, inclusive. This is an average of 52 dry holes per new field. The average for the recent 6-year discovery period was 36 dry holes per new oil field and gas field. Another interesting figure that can be deduced from data on Plate II is that an average of 185,000 ft. of dry hole has been drilled per new field discovered during the 20-year period under consideration. Assuming a total cost of $40 per foot, including all exploration costs, the average cost of finding a new field is $7,400,000. Although the price of discovery comes high in California, the reward has been attractive. From 1920 to 1939, inclusive, estimated ultimate production was increased over five billion barrels principally by the 45 new oil discoveries. This is an average reward of 110,000,000 bbl. of oil per field.

Production Data and Reserves

Exploration activity over the 20-year period under consideration can probably be correlated with production and reserves. Plate III has been prepared for this purpose. It shows graphically by years the number of producing wells completed, oil production, reserves developed, and customary curves of past, estimated future, and estimated ultimate oil production.

For the sake of consistency, annual production and new reserves have been plotted on Plate III to the same scale as the other production statistics. Consequently they do not show outstanding relief. A dot has been placed after each production figure to prevent confusing with the new reserve figure. California reached an all-time production peak of 292,036,911 bbl. of oil in 1929. An earlier peak of 263,728,895 bbl. of oil was attained in 1923 and a recent high of 249,749,246 bbl. of oil occurred in 1938. The production graph shows fair conformance with well completions and also is quite similar to the activities graphs and to the results graphs shown on Plate II.

In plotting the new reserves graph shown in columnar fashion on Plate III, the new reserve estimates for any 1 year have been allotted to the year of discovery of a field prior to 1935 and to the year of discovery of a field or zone from 1935 forward. Thus, according to this scheme, an estimate of reserves made at the end of 1940 may give a corrected assignment of 200,000,000 bbl. of oil to 1939 rather than the 45,500,000 bbl. which has been arbitrarily assigned for the four new fields discovered in that year and may also increase new reserves and total reserves for former years. The dashed lines at the end of the reserves and ultimate production graphs show anticipated effect of the application of this scheme in 1940 for the years 1939 and 1940. The reason for following this scheme is to relate reserves to the time of discovery, rather than to the time of proof and development, as an index of the results of exploration instead of development. The 1921 new reserves peak is caused by allotting back reserves later proved at Santa Fe Springs, Long Beach, and



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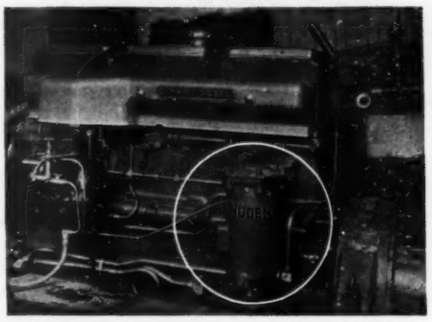

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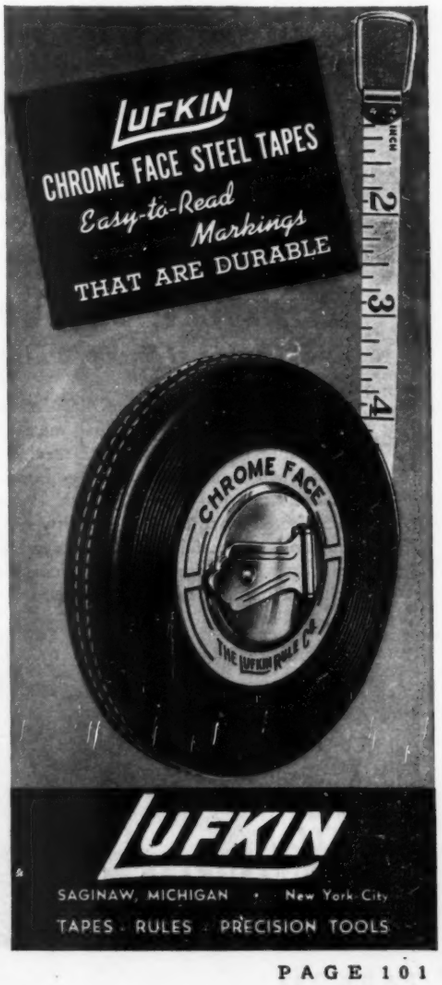

Huntington Beach oil fields, and the 1928 peak reflects discovery of Kettleman North Dome oil field. The lesser 1936 high results principally from Ten Section, Santa Maria Valley, and Wilmington discoveries in that year.

The estimated reserves graph is also influenced by the scheme of throwing new reserves back into the year of discovery of the field or zone. This accounts for the sudden increases in 1921, 1928, and 1936. An estimate made for 1940 will look something like the dashed line at the end of the graph. Disallowing for these irregularities, the remarkably horizontal trend of reserves in spite of increasing demand is very noteworthy. The downward trend in the early thirties is the direct result of decline in exploration during the depression years. Using the estimated reserves figure of this paper, California's reserves are 17.6 per cent of the total estimated for the United States. If the more optimistic A.P.I. estimate of California's reserves of 3,532,342,000 bbl. of oil is used, this proportion is raised to 19.1 per cent.

Aside from the sudden increases already cited as caused by method of computing and except for the flattening during the depression years, the ultimate production graph shows an upward trend at a nearly uniform rate. Estimated ultimate production of oil in California was increased 5,121,000,000 bbl. during the 20-year period under discussion to a total of 8,585,000,000 bbl. of oil as of January 1, 1940. During this 20-year period, 1⅓ times as much oil was found in California as was found in the 45 years prior thereto. On a time basis, ultimate production of oil was proved at a 3⅓ times greater rate, during the last 2 decades than during the 45 years of prior development.

Conclusions

Many inferences can be drawn from a study of the data presented on the three plates accompanying this paper. Some of these inferences should be applicable to oil-producing localities other than California. It is hoped this paper will stimulate a correlation of exploration activities and results for other oil-producing provinces that then might be combined into a general picture for the United States. Different readers may arrive at various answers but the writer believes that the outstanding conclusions of this study can be covered in the following brief statement.

Certainly, economics have controlled exploration and results in California. There has been a direct relationship between geological activity, drilling exploration, and discoveries during the past 20 years. Reserves increased during the boom years of the twenties and declined with diminishing geological activity and exploratory drilling in the depression years of the thirties. This depression will have the lasting effect of delaying the finding of California's ultimate production. The increase in exploration and discoveries during the late thirties served merely to maintain the reserve position.

Oil reserves are the life blood of any successful oil company. At the present stage of the oil industry in California, reserves must not be allowed to decline. If reserves are to be maintained in the existing horizontal trend for as long as possible, exploration must continue in an upward trend and without the fluctuations of the past 2 decades.

More exploration and, consequently, more geological manpower will be required to find a unit quantity of new California oil in the future than has been necessary in the past. This is because all of the obvious geological and geophysical prospects have already been tested. The last oil field will be the most difficult and most expensive to find.

Fluctuations of exploration activities within the oil industry are inefficient because of the loss of experienced men who may never return to the industry and because of the cost and time consumed in rebuilding an exploration organization.

Geological activity in California should increase. The unfortunate variations, which are controlled by economics, should be kept at a minimum in both time and intensity. Is the exploration employment graph about to decline as it did after 1929 or is the current leveling of this graph merely one of those minor fluctuations which occurred during the period from 1925 to 1927? The writer believes, that, if oil-company executives will accept a logical view of the need for continued exploration, an upward trend of geological employment with minor fluctuations will be the answer.

From now on, the seismograph will have its "downs" and "ups" in California as requirements call for its use by geologists but the trend should be nearly horizontal, unless new regions or deeper zones of oil production are discovered in the valley floors.

The reason for greater stability of geological employment by the oil companies that started exploration in California during the twenties, as compared with those already in the field, is probably a greater need for reserves by the newer companies. The older companies were better intrenched. Another explanation may be fresher and more intensive geological thought on the part of new entrants.

Wildcat wells will probably be drilled to greater depths in search of oil in Lower Tertiary sands and even into Cretaceous sands at low positions in California's structural basins. Whether or not deeper production of oil can be developed, will depend upon the reservoir characteristics of such sediments. Recent discoveries of Eocene oil have been close to shorelines at relatively shallow depths. Will these sands have reservoir character-

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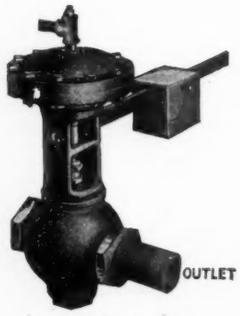

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istics favorable to production of oil at great depths in the sedimentary and structural basins? Upon these conditions as well as the existence of suitable traps will depend the maximum depths from which oil will eventually be produced in California.

Finally, continued exploration is essential as a means of maintaining California's reserve position as long as possible. Whether or not exploration can be actively carried on during the near future will depend on the outcome in a battle of foresight against current economic demands. For the benefit of the oil industry in California, it is hoped that foresight will prevail.

California Fields

(Continued from Page 98)

order to determine whether this lease, located far out on the north flank, is capable of producing from this deep zone. In 18-21-17, Kenda has 322-18-J making hole at 10,200 ft. and should hit top of the productive interval in the Eocene shortly. Two relatively small wells were completed in the Midway-Sunset field of Kern County this week and both required a pump to make production. Exeter, 8 Murphy fee, has been completed pumping 17 bbl. of 21.9-gravity oil per day from 3,137 ft., which is about normal for this immediate area. In 32-32-24, Texas Co. had better luck as 40 was finished pumping 151 bbl. of 22.6-gravity oil daily from 3,210 ft. This well was finished with 138 ft. of 5-in. gravel-packed liner including 65 ft. of perforated. Mascot Oil Co., one of the field's pioneers, has completed rigging up well 56 in 26-32-23 and this well should get under way shortly.

Los Angeles Basin

In the Aliso Canyon field, which it discovered in October 1938, Tide Water Associated Oil Co. this week completed 15 Porter flowing 1,460 bbl. of clean 23.4-gravity oil and about 500,000 cu. ft. of gas per day from 5,500 ft. This new well was finished with an 8⅝-in. water string cemented at 4,970 ft. and 578 ft. of 6⅝-in. liner landed at 5,490 ft. and carrying 80 mesh perforations at 4,958-90 ft. and 4,725 ft. of 3-in. tubing. Tide Water Associated Oil Co. has taken over from Union Oil Co. a part of the W. W. Orcutt ranch property on which Union drilled a dry hole subsequent to discovery of the field and will develop it on an operating arrangement under which each will participate in any production developed. In the East Coyote field of Orange County, Fred Garliepp has recompleted 3 Yorba pumping 50 bbl. of 30.9-gravity oil per day from 3,350 ft. This well was originally drilled by Chiksan Oil Co. The deep zone found a few weeks ago by Bartholomae Oil Co. when 9 Stern was finished flowing 500 bbl. per day has stimulated interest in the East Coyote field and while not all wells being started will be carried down to the lower zone there should be one or two deep tests made in the near future.

Coastal District

Chanslor-Canfield Midway Oil Co. completed two good wells high up in the Rincon field of Ventura County this week when 34-B Hobson was finished flowing 715 bbl. of clean 29.9-gravity oil and 450,000 cu. ft. of gas daily from 5,050 ft. and completed 35-B Hobson on the same lease flowing 361 bbl. of 30.6-gravity oil and 160,000 cu. ft. of gas per day from an effective depth of 5,135 ft., after being drilled to 5,375 ft. and plugged back because of bottom water. The former well was finished with a solid blank string of 7-in. casing which was cemented at 4,670 ft. and then gun-perforated at 4,144-4,206, 4,232-86 and 4,322-85 ft. On the other hand, 35-B Hobson was finished with a string of blank 7-in. casing which was cemented at 5,052 ft. and then gun-perforated at 4,428-82 and 4,586-4,730 ft. Down to this point both completions were uniform but below the shoe of the 7-in. in 35-B Hobson the company ran in a 4¾-in. gravel-packed liner. This 4¾-in. liner was 711 ft. in length which put the upper part inside the lower part of the 7-in. The 4¾-in. was perforated at 4,421-84, 4,576-4,729 and 5,036-5,129 ft.

Two new wells were completed in the Ventura Avenue field this week and one of them showed substantial production. This was 120 Taylor of Shell Oil Co. which was completed flowing 3,438 bbl. of clean 30.9-gravity oil and 2,643,000 cu. ft. of gas per day from the upper zone at 7,600 ft. This well is located in the south central part of the Taylor lease. Tide Water Associated, 25 Hartman, has been completed flowing 232 bbl. of clean 31.7-gravity oil and 500,000 cu. ft. of gas per day from 7,407 ft. This well was finished with a 9⅝-in. water string cemented at 7,270 ft. and 186 ft. of 5-in. liner landed at 7,402 ft. and perforated at 7,282-7,402 ft. and 7,066 ft. of 2½-in. tubing. Last week Shell completed 117 Taylor flowing 1,472 bbl. daily and 119 Taylor flowing 3,744 bbl. daily, which is indicative of the kick of this field.

Rocky Mountain Area

(Continued from Page 95)

Stillwater County

The Texas Co. has let drilling contract to Manning & Martin, Inc., for an important wildcat on the Absarokee dome in Stillwater County, north of the Dry Creek field in Carbon County, for a 6,000-ft. rotary test to the Dakota. The company has a block of 12,000 acres fully unitized which it has held for the past 9 years. The structure is approximately 6 miles long and 4 miles wide on a northwest-southeast trend, with approximately 250 ft. of closure.

Texas, 1 Unit ..... SE NW 10-4s-19e
M.I.M.; (first report).

Pondera County

R. C. Tarrant, 1 Lang ..... SE SE NW 14-31n-5w
Loc.

Toole County

Casper T. Oien 9 Engemoen, NW NE NW 14-35n-2w, Kevin-Sunburst field, was completed for 5 bbl. per day at 1,595 ft., total depth, after acidizing. It plugged back to 1,584 ft. Contact was at 1,572 ft.

Black Label Oil 10 State, SW SE SE 16-35n-2w, is pumping 90 bbl. per day at 1,535 ft., total depth, from the contact at 1,531 ft., after acidizing with 500 gal.

J. H. Agen 2 Goeddertz, NE NW NW 23-35n-3w, pumped 8 to 10 bbl. of oil and 30 bbl. of water per day at 1,747 ft., in the top of the contact, after acidizing with 1,000 gal.

Black Label Oil, 11 State .... NE NW NE 16-35n-2w
Spdg.; (first report).
Silver Oils, 3 Haskins ..... NE SW SW 25-36n-2w
Drlg. 440 ft.; (first report).
Lion Oil, 5 Haugen ..... NW SE SE 11-35n-3w
Spdg.; (first report).
A. E. Crumley & Son, 20 Fryberger .....
SW SW NE 24-35n-3w
Spdg.; (first report).

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Michigan Field Report

By
OTTO C. PRESSPRICH

Michigan Continues Quiet as Many Tests Prove Failures

SAGINAW, Mich., July 8.—Michigan oil operators completed 23 oil and gas tests during the past week, abandoned locations for three other wells and temporarily suspended drilling on two other drilling tests. Eleven completions were producing wells, their total initial daily output being 1,950 bbl. Eight of the 12 dry holes were classed as wildcat tests.

Allegan County was the most active section with eight completions, four of which were dry holes. Best production came from two wells in the Wise field of the Central Michigan area. Those Isabella County wells, one drilled by Cities Service, the other by Gulf Refining Co., each rated considerably above 400 bbl. a day.

Late developments around Section 8 of Overisel Township, Allegan County, where a discovery well was recorded a few weeks ago, indicate the section will be relatively unimportant. Several dry holes have been drilled since in the immediate vicinity. Conditions are similar in Grout Township of Gladwin County, where Sun Oil Co.'s No. 1 Cameron wildcat was completed as a 15-bbl. well. In Huron County, the Broomfield Township discovery well, drilled by C. W. Teater and Wallace Markle in Section 8, was put on the pump last week. If results are unsatisfactory after a week of pumping, they plan to deepen the test. A Smith Petroleum Co. wildcat test in Lowell Township of Kent County was being acidized.

R. A. Smith, state geologist, said over the week end that the low market price is a factor in the decline in Michigan development this year. The number of drilling permits has fallen below the total for the corresponding period a year ago and since January daily oil production has declined about 10,000 bbl. "If operators could get a slightly higher price," Mr. Smith said, "I thing you'd see plenty of new development."

Last week the state issued only 15 drilling permits, six of them being for wildcat tests, including two in Allegan County, others being in Cass, Kent, Muskegon and Oakland.

Last week's completions summary:

Allegan County

Allegan Township (2n-13w)—The hole dry at a depth of 1,481 ft., James Ramsey's No. 1 Joseph Rozeboom, C W½ NE NW Section 15, was abandoned.

Heath Township (3n-14w)—Brailey-Heath Oil Syndicate's No. 2 Albert Stankey, SW SE SE Section 4, completed at a depth of 1,504 ft., was good for initial production at the rate of 200 bbl. a day after being acidized, while Howard E. Fowler's No. 2 Stankey, NE SE SE Section 4, was reported producing 100 bbl. a day, naturally, from a depth of 1,470 ft.

Overisel Township (4n-14w)—No. 1 Federal Land Bank, SE NE SW Section 5, drilled by W. R. Borough, Inc., was abandoned as a dry hole at 1,500 ft. Also dry and abandoned was A. E. Kopprasch, trustee's No. 1 Scholten, NW SE SW Section 33, drilled to 1,597 ft.

Salem Township (4n-13w)—After acidizing No. 1 J. H. Smith, SE NE NW Section 15, Universal Gas & Oil Corp. reported the well producing 40 bbl. a day. Depth is 1,593 ft. Salem Oil & Gas Co. abandoned its No. 5 John Gaca, NW NE SW Section 14, the test failing to show oil at 1,592 ft.

Trowbridge Township (1n-13w)—James E. Flanigan temporarily abandoned No. 2 G. B. Brown, SE NE NE Section 29, with drilling at 1,373 ft.

Berrien County

Berrien Township (6s-17w)—Lakeland Oil Corp.'s No. 1 Mary E. Aubill, SW NW NE Section 5, was abandoned as a dry hole at a depth of 762 ft.

Calhoun County

Athens Township (4s-8w)—D. P. Hynes' No. 1 A. C. Moore, SW SE SE Section 17, was dry and abandoned at a depth of 1,304 ft.

Cass County

Silver Creek Township (5s-16w)—Silver Creek Oil Co.'s No. 2 Lee Flynn, SW NW NW Section 23, was a dry hole at a depth of 815 ft. and the same company temporarily abandoned activities on its No. 1 Ellen Finley, NW NW SW Section 23, at 813 ft.

Gladwin County

Grout Township (18n-2w)—Sun Oil Co.'s No. 1 Alex Cameron, Jr., C E½ NE SE Section 10, wildcat discovery well, indicating possibility of a small new Gladwin field, was producing 15 bbl. a day, after being acid treated, at 3,838 ft.

Isabella County

Wise Township (16n-3w)—The two biggest producers of the week were Wise field developments as Cities Service Oil Co. completed its No. 4 Allen, NW NE NE Section 17, at 3,745 ft., reporting initial daily production after acid treatment of 433 bbl., while the after-acid initial was 467 bbl. a day from the No. 4 Minnie Burch, SW SE NW Section 17, a development of the Gulf Refining Co. production division. Depth of the Burch well is 3,725 ft. No. 1 Worden location, SE NW SW Section 9, was abandoned by J. V. Wicklund Development Co.

Kent County

Lowell Township (6n-9w)—Whiteson Oil & Gas Co.'s No. 1 O. L. Rulason wildcat, NE NE SE Section 17, was abandoned, a dry hole at 2,147 ft.

Walker Township (7n-12w)—Gordon Oil Co.'s No. 1 Park, NW NW NW Section 30, completed at a depth of 1,973 ft., was producing 65 bbl. a day after acid treatment.

Montcalm County

Richland Township (12n-5w)—Belvidere Oil Co.'s No. 1 Goodenough and others, NE SW NW Section 18, a test for natural gas, was unsuccessful, the hole being plugged after reaching a depth of 1,262 ft.

Ottawa County

Tallmadge Township (7n-13w)—Four of the six recorded Tallmadge completions were commercial wells, one was dry, the other merely a location abandoned. American Drilling Co.'s No. 2 Anna Snip, SE SW NW Section 23, was the dry hole, abandoned after reaching depth of 2,030 ft. Best of the producers was Marshall H. Bauman's No. 3 C. Den Boer, C W½ SE NW Section 23, producing 200 bbl. a day from 1,873 ft., after being treated with acid. Nearly as good a well was Smith Petroleum Co.'s No. 1 Josephine Kurek, NW SW NE Section 34. Completed at 1,945 ft., it was producing 190 bbl. a day, after acidizing. No. 3 Nichol, NW NW NE Section 23, drilled by Edward B. Strom, trustee, was acid treated, jumping production to 150 bbl. a day. Depth of the well is 1,871 ft. Turner Petroleum Corp. completed No. 3 F. T. White, NE NE NW Section 23, at 1,876 ft. and was getting 90 bbl. a day after acidizing the hole. The location abandoned was Smith Petroleum Co.'s No. 6 J. S. Masterson, NW SW SE Section 23.

Van Buren County

Bangor Township (2s-16w)—Gratiot Oil & Operations Co. abandoned location, SW SW NE Section 21, from the proposed No. 1 B. G. Kinnedy.

Columbia Township (1s-15w)—Merrill & Dean's No. 1 A. T. Harrell, NW NW SW Section 4, was dry and abandoned at a depth of 1,176 ft.

Shiawassee County

Shiawassee Township (6n-3e)—Melvin Miller and O. H. O'Neal abandoned No. 1 L. W. Rowley and others, NE NE SW Section 11, at a depth of 1,914 ft.

Western Kentucky

(Continued from Page 72)

Logan County, ½ mile southeast of Homer: Jess Ashby and others' No. 1 Jewel Anderson, dry hole, total depth 1,665 ft.; Devonian oil show at 1,455-60 ft

Ohio County, Adaburg district: Dr. Hardie's No. 9 Nannie Bean, drilling at 100 ft. Leeper Oil Co.'s No. 4 Mary E. Foreman, drilling at 700 ft. Sunnydale district: J. W. Tuttle and others' No. 2 Lena Berry, rigging up. Pleasant Grove Church district: W. A. Way and others' No. 6 W. H. Davidson, drilling at 200 ft. Pattyville district: P. P. Murphy and others' No. 5 Bonnie Walker, drilling at 125 ft. M. King's No. 1 W. P. Davidson, spudding in. Fordsville district: Henry Scholl's No. 4 Ira Hale, rigging up. Narrows district: W. G. Obins' No. 2 Dee Harrison, drilling at 100 ft. Dundee district: Sohio Producing Corp.'s No. 3 J. E. Mitchell, drilled deeper from 400 to 577 ft.; to be used as key well.

EASTERN KENTUCKY

ASHLAND, Ky., July 8.—Four oil wells and three gas wells were completed in the eastern Kentucky fields this week. One dry hole was reported and two other wells reached their total depth but production data was not available.

Agatha Wireman reports the completion of 3 Kinser heirs No. 2 tract, on South Fork in the South Fork district of Powell County. The well reached a total depth of 448 ft. and is producing 15 bbl. daily.

Monroe Faulkner and Levi Goff 2 Amburgy heirs, on South Fork in Powell County, at a total depth of 800 ft., is completed as a 10-bbl. well.

Evans Oil & Gas, 5 W. Townsend, also on South Fork in Powell County, is producing 20 bbl. of oil per day, at 842 ft.

Mays & White 3 Stuart heirs, on South Fork in the South Fork district of Powell County, is producing 10 bbl. at 760 ft.

South Penn Oil Co. hit a dry hole in 5 Woodard heirs, on South Fork, at 700 ft.

Kentucky-West Virginia Gas Co. completed 5265 on the J. G. Carlisle tract on Cassady Branch of Coldwater Fork. The well reached a total depth of 2,971 ft. in Big lime, producing 45,000 cu. ft. in that formation, 272 lb. rock pressure, and is making 238,000 cu. ft. from shale, 295 lb. rock pressure.

Kentucky-West Virginia Gas Co. completed 5266 on the Henry Watson land in the Coldwater Fork area of Martin County, at a total depth of 3,159 ft. in shale, with 198,000 cu. ft. at 360 lb. rock pressure, under 72-hour test.

Kentucky-West Virginia Gas Co. completed 5268 on the Monroe Bolen tract on Long Branch of Jones Fork in Knott County, at a total depth of 2,850 ft. The well is producing 238,000 cu. ft. of gas, 410 lb. rock pressure, at 120 hours.

Knott County: Inland Gas Corp. has reached 1,825 ft. and is fishing in Maxon in 213 W. R. Smith et al, on the Right Fork of Troublesome Creek. Same operator is at 1,309 ft. in third Salt sand in 214 Lindsey Amburgy, on Mill Creek of the Left Fork of Troublesome Creek.

Powell County: Arthur Wireman has reached 840 ft. in 1 T. A. Hall, on South Fork in the South Fork district, but production data are not available.

Eastern Field Report

By STAFF CORRESPONDENT

Deep Oriskany Test Started In Northern West Virginia

PITTSBURGH, Pa., July 8. — In Harrison County, West Virginia, an interesting wildcat is being started by the Hope Natural Gas Co. as its No. 8505, on the C. S. Gribble farm in Grant district. On the Weston Quadrangle, it is located 0.57 mile south of Lat. 39° 10′ and 4.3 miles west of Long. 80° 15′. It is on the west flank of Chestnut Ridge about 1 mile east of Lost Creek. This test will be drilled to the Oriskany (Lower Devonian) which should be found at about 7,300 ft. The test will be drilled with a rotary, the first in West Virginia, the contractor being the Seaboard Drilling Co

During the past week in the lower eastern fields, 35 operations were completed of which 9 were dry, 15 gas wells, and 11 oil producers with a daily initial of 157 bbl., most of which was in Southeast Ohio.

SOUTHEAST OHIO

In Lorain County, Ohio, Forrest Oil Co. opened up a shallow Berea pool on the Charles W. Wise farm, Lot 53, Grafton Township, which appears initially very productive. The test on this farm, 2,000 ft. from the north line and 30 ft. from the west line, was dry at 184 ft. The second test 345 ft. from the west line and 2,000 ft. from the north line, was good for 50 bbl. a day without shot. The No. 3, 665 ft. from the west line, was good for a like amount at 164 ft. deep.

In Athens County Gross & McCune completed No. 7 Grant Antle, Section 30, Rome Township, at 420 ft., the first Cow Run sand, which produced 8 bbl. the first day after shot. In Fraction 19, Lodi Township, A. D. Townsend drilled a test on the George W. Grimm farm to 1,610 ft., the second Berea, and it was dry.

In Knox County the Knox Exploration Co. drilled a test on the F. H. Samples farm, Lot 26, Howard Township, through the Clinton sand to 2,780 ft., and it was dry.

In Licking County Ohio Fuel Gas Co. completed a test on the Charles Wilson farm, Section 15, Mary Ann Township, in the Clinton sand at 2,570 ft. It is a gas well gaging 1,400,000 cu. ft. a day. In Section 13, this township, Eugene Ridgway completed No. 4 Eliza Richards in the Berea sand at 832 ft., which produced 10 bbl. the first day after shot.

On the north side of Newark City, Newark Township, Licking County, National Drilling Co. completed a test on the Baker and Chilcoat lease in the Clinton sand at 2,375 ft. which is good for 450,000 cu. ft. of gas a day. In Section 6, Perry Township, Stricker and Armbuster completed a test on the G. H. Patton farm in the Berea sand at 793 ft. which produced 5 bbl. the first day after shot.

In Noble County J. E. Lumbatis completed a test on the Marion Pepper farm, SE Section 30, Stock Township, in the Salt sand at 875 ft. which is good for 2 bbl. a day without shot. On the L. A. Booth farm, same quarter section, this operator completed a test to the same formation at 930 ft. It is also a 2-bbl. well.

In Perry County Palm Oil Corp., Inc., completed a test on the Davis farm, NW Section 16, Clayton Township, in the Clinton sand at 3,275 ft. which produced 10 bbl. the first day without shot. In the NW Section 20, Madison Township, Gas Producing Co. of Ohio completed No. 3 Miles Lattimer in the Clinton sand at 3,095 ft. It is a gas well gaging 250,000 cu. ft. a day along with a small showing of oil.

In NW Section 27, Jackson Township, Perry County, William Glass completed a test on the E. G. Brown farm in the Berea sand at 955 ft. which is good for 200,000 cu. ft. of gas a day. In the NW Section 34, same township, Hover Brothers completed a test on the Stanley Adcock farm at 940 ft., the Berea sand, which was void of any showing.

In Washington County Hall and Henning drilled a test on the Charles Ludington farm, Section 34, Independence Township, through the Squaw sand to 1,520 ft., which was dry.

SOUTHWEST PENNSYLVANIA

In West Deer Township, Allegheny County, Larkin and others completed a second test on the C. H. Church farm at 1,843 ft. with the Third sand topped at 1,826 ft. and it filled up 300 ft. It is good for 15 bbl. a day. This was the only oil completion in the district.

Armstrong County

In Cowanshannock Township, Armstrong County, Equitable Gas Co. is drilling No. 3 G. W. Smeltzer at 2,403 ft. In Kittanning Township, this company is deepening No. 1 James Watterbaugh and drilling at 1,918 ft. Edward Young is drilling No. 2 Hugh Blair at 3,445 ft., and H. C. Judson No. 1 Robert Watterson at 1,226 ft.

In Mahoning Township Penn Wayne Gas Co. is drilling No. 1 Elizabeth Foster at 1,500 ft. John Wray and others are fishing at 480 ft. in No. 1 King Shaffer. In Plum Creek Township Peoples Natural Gas Co. is drilling No. 1 John Shetler at 2,373 ft., and William McCollins No. 2 Add Reefer at 845 ft. In Wayne Township Galbreath and others are drilling No. 2 John Dormire at 1,980 ft. In Burrell Township Equitable Gas Co. is building a rig for No. 2 James Deshong.

Indiana-Clarion-Westmoreland

In Washington Township, Indiana County, T. W. Phillips Gas & Oil Co. completed No. 1 Lavina Richard at 3,270 ft. with 112,000 cu. ft. of gas a day from the Murraysville and Snee sands. Here, this company is drilling No. 1 Charles T. Fleming at 993 ft.

In Center Township, Indiana County, this company drilled No. 1 R. & P. Coal Co. to 3,266 ft. and it was dry. The No. 2, same lease, is drilling at 1,165 ft. In White Township this company is drilling No. 1 Laura Campbell at 2,690 ft. In Brush Valley Township this company is down 2,605 ft. in No. 1 Jesse A. Boyer, and deepening No. 1 R. M. Burns at 1,737 ft.

In Armstrong Township, Indiana County, J. C. Rinn is drilling No. 2 Perdon heirs at 1,265 ft. In South Mahoning Township John Wray and others have a rig standing for No. 2 James Lukehart.

In Clarion County M. T. Rhea has a location for a test on the C. Wassum farm in Piney Township. In Porter Township Cottage Hill Gas Co. is drilling No. 1 E. M. Reitz at 2,613 ft., and T. A. Swartzfager No. 4 C. A. Swartzfager at 1,960 ft. In Monroe Township Owens Illinois Glass Co. is drilling No. 1 P. M. Smathers at 1,268 ft. T. W. Phillips Gas & Oil Co. is drilling No. 2 Charles Byers at 2,400 ft., and in Red Bank Township No. 2 David McKinley at 761 ft.

In Westmoreland County Peoples Natural Gas Co. is rigging up for No. 2 J. F. Young in Allegheny Township, and rigging up to deepen No. 1 J. S. and J. P. McLaughlin. In Lower Burrell Township this company is drilling No. 1 John Hulton at 2,636 ft., and in Washington Township No. 2 A. J. Iding at 2,990 ft. In Bell Township Kiski Valley Gas Co. is down 1,679 ft. in No. 1 J. F. Wolford.

Greene-Fayette-Washington

In Richhill Township, Greene County, Carnegie Natural Gas Co. has made a location for No. 8 J. K. Loughridge. Here, O. I. Dille and others are cementing No. 2 Madison Hughes at 1,815 ft. In Center Township J. B. Orndoff lost tools in No. 3 Mattie I. Scott, and is drilling by.

In Morris Township, Greene County, Romney Rutan and others are building a rig for a test on the Alfred Rutan farm. Hiawatha Oil Co. reached 3,400 ft. in the test on the Thomas Young heirs and shut down. In Monongahela Township John Ingraham and others are drilling No. 1 Bliss Donham at 340 ft. In Wayne Township I. S. White and others are down 916 ft. in No. 1 Norman Strosnider, and Waynesburg Home Gas Co.'s No. 1 W. A. Elms at 1,685 ft. In Jackson Township A. V. Lewis and others are down 2,267 ft. in No. 1 Smith and Pethel. Greene County Gas Co. is drilling No. 1 William Pratt at 125 ft.

In Washington County Carnegie Natural Gas Co. has made a location for a second test, W. C. McCollum in Amwell Township. Here, this company will deepen No. 1 Charles B. Frazee. Here, Equitable Gas Co. is drilling No. 1 R. Foster at 2,664 ft., and in Somerset Township No. 1 W. W. Wright at 2,283 ft., and No. 1 Watkins at 1,530 ft. with a location for No. 1 James Earl Smith, elevation 1,134 ft. In South Franklin Township F. K. Fawcett and others are drilling No. 2 J. C. and Anna Phelan at 2,050 ft. In North Franklin Township E. H. Tague is drilling No. 14 A. D. McKennan at 425 ft. In Blaine Township Washington Oil Co. is drilling No. 1 Vera K. Stine at 2,380 ft.

In Fayette County Wahler Powers Oil & Gas Co. is drilling No. 2 Shamrock Farms Co. at 2,362 ft., and No. 1 W. L. Rockwell at 1,165 ft. Both are in Menallen Township. In German Township J. H. Carnell is down 1,938 ft. in No. 1 Marion Kurkankuski.

Deep Tests

On Chestnut Ridge in South Union Township, Fayette County, New Penn Development Co., William E. Snee and others deepened the No. 2 Summit Hotel (Heyn) to 6,793 ft., or 26 ft. below the previous total depth. No change in gas volume was noted. This is 107 ft. below the top of the Onondaga. On Laurel Ridge in Stewart Township these operators and E. G. Mueller are drilling at 7,539 ft. in the test on the Gregg L. Neel farm and encountered two gas pockets in what is believed to be the Marcellus shale. The Onondaga is expected shortly.

On Chestnut Ridge in South Union Township Peoples Natural Gas Co. is drilling No. 2 Piedmont Coal Co. at 5,476 ft. and to date has made excellent time.

WEST VIRGINIA

During the past week in West Virginia two small oil wells were completed. In Doddridge County O. E. Garrett, Jr., completed No. 2 Loverna Gainer in Greenbrier district at 2,900 ft. with the Gordon sand at 2,854-64 ft. and about 2 bbl. per week before the shot at 2,862 ft.

In Pleasants County W. C. Patterson completed a test on the Calvin Conway farm in Washington district at 1,612 ft., the Maxton sand, which is good for 4 bbl. a day.

Gas Wells

In Boone County South Penn Natural Gas Co. completed a test on Minnie White farm in Crook district at 3,263 ft., which gaged 214,000 cu. ft. a day from the Berea sand while cleaning out. In Sherman district Owens, Libby-Owens Gas Department completed No. 33 Peytona Coal Land Co. at 4,118 ft. which gaged 75,000 cu. ft. a day from the Brown shale.

In Cabell County West Virginia Gas Co. completed a test on the G. L. Wilson farm in McComas district at 3,435 ft. with the Big lime at 1,530-1,690 ft.; Big Injun at 1,750-1,832 ft.; Berea at 2,336-45 ft.; Brown shale at 3,020-3,425 ft., and a gage of 50,000 cu. ft. a day, 36 hours after shot.

In Clay County Pittsburgh & West Virginia Gas Co. drilled No. 7738 Genevieve Farr in Otter district to 1,968 ft. and it was dry. The Salt sand was at 1,084-1,196 ft.; Big lime at 1,702-1,916 ft., with a small showing of gas at 1,858 ft.

In Gilmer County McCall Drilling Co. completed No.

4 Robert Napier at 1,587 ft. with the Maxton sand at 1,569-87 ft., and gas gaging 1,088,000 cu. ft. a day before shot at 1,572-87 ft. This company also drilled a test on the G. W. D. Fling land to 2,115 ft., with the Big lime at 1,912-80 ft.; Big Injun at 1,980-2,061 ft., and a show of gas at 2,059 ft. It will be plugged. Both are in DeKalb district.

In Putnam County Lick Creek Gas Co. completed a test on the Mack Wood farm in Curry district at 2,167 ft. with the Big lime at 1,455-1,660 ft.; Big Injun at 1,675-1,705 ft.; Berea at 2,141-67 ft., and good for 140,000 cu. ft. a day, 26 hours after shot.

In Roane County T. W. Kennedy and others completed No. 3 B. F. Winters in Harper district at 1,590 ft., the Salt sand, and good for 500,000 cu. ft. a day.

In Wetzel County G. B. and A. C. Patterson drilled a test on the Fowler heirs farm in Liberty district through the Fifth sand to 2,777 ft., and it was dry.

Oriskany Gas Field

In the Oriskany gas field in Kanawha County two new completions were made. In Poca district West Virginia Gas Corp. completed No. 038 Elizabeth Thaxton and others at 5,058 ft. with the Oriskany at 4,995-5,053 ft. and a final gage of 2,989,000 cu. ft. a day. In this district Godfrey L. Cabot, Inc., is completing No 3 D. Holmes Morton with the Oriskany topped at 5,026 ft., and a gage of 1,724,000 cu. ft. a day at 5,069 ft. The final gage of the Columbian Carbon Co.'s No. 1 Joseph Hughart in this district was 2,834,000 cu. ft. a day before shot at 5,086 ft. with the Oriskany topped at 5,008 ft.

In Poca district United Fuel Gas Co. shut down No. 4878 J. P. Bailey at 4,900 ft. for shot with the Oriskany topped at 4,833 ft. Godfrey L. Cabot, Inc., topped the Corniferous lime at 4,733 ft. in No. 845 Ida P. Gibson. United Carbon Co. is drilling No. 830 O. B. Boggess at 1,995 ft. and No. 831 Mary E. Carney and others at 1,675 ft. Columbian Carbon Co. is drilling No. 1 George W. Spencer at 1,045 ft., No. 1 D. W. Taylor at 3,330 ft., No. 1 Donald L. Cork at 1,270 ft., No. 1 Fay E. Hughart at 1,245 ft. Everett Starcher is down 1,956 ft. in No. 1 G. J. Litton, and Poca Fork Oil & Gas Co. is down 2,008 ft. in No. 1 Anna M. Jones.

Jackson County

In Washington district, Jackson County, United Fuel Gas Co. completed No. 4874 D. E. Ray at 5,067 ft. with the Corniferous lime at 4,852-4,965 ft.; Oriskany at 4,965-5,045 ft.; gas 4,974-78 ft., which gaged only 180,000 cu. ft. a day while drilling and 1,929,000 cu. ft. a day after shot. Here, this company is drilling No. 4875 E. N. Ray at 5,005 ft. with the Corniferous lime topped at 4,919 ft.; No. 4873 D. C. Milam at 1,978 ft.; No. 4879 Job E. Ray at 3,302 ft. In this district R. E. McCabe is drilling a test on the F. M. Ray farm at 4,340 ft. Godfrey L. Cabot, Inc., is drilling No. 1 E. C. Comer at 1,360 ft., and No. 1 Charles L. Mangus at 395 ft.

In Ripley district R. E. McCabe completed a test on the Biggess and Fisher lease at 4,999 ft. with the Corniferous lime at 4,838-4,948 ft.; Oriskany at 4,948-4,994 ft.; gas at 4,952-58 ft. and 4,971-74 ft. It gaged, before shot, 381,000 cu. ft. a day, which increased after shot to 2,500,000 cu. ft. Here, West Virginia Gas Corp. is drilling No. 1 R. S. Coleman at 860 ft. Joe Rubin is drilling No. 1 Clarence Pfost at 2,025 ft.

New Work

Boone County: Camero Oil & Gas Co.'s No. 10-A George P. Alderson, Scott district, elevation 980.25 ft. Pure Oil Co.'s No. 87 Federal Coal Co., Sherman district, elevation 849.88 ft.

Braxton County: Z. N. Connolly's No. 1 Dewey Baker, Birch district, elevation 820 ft.

Gilmer County: Carnegie Natural Gas Co.'s No. 1 Coleman L. Peters and others, DeKalb district, elevation 1,144 ft.

Jackson County: Guy G. Boggess' No. 1 H. L. Tallman, Ravenswood district, elevation 784.4 ft.

Kanawha County: Rex Oil & Gas Co.'s Nos. 1 and 2 A. J. Bettie Kelly, Big Sandy district, elevation 1,045 ft. and 910 ft. G. L. Cabot, Inc.'s No. 1 J. L. McLean, Poca district, elevation 684.04 ft. Glenn Dearth and others' No. 1 P. S. Berry, Poca district, elevation 819.9 ft. Glenn Oil & Gas Co.'s No. 1 A. V. Olive, Poca district, elevation 927.67 ft. United Carbon Co.'s No. 1 R. S. Milam and others, Poca district.

Marshall County: Matthew and Thomas Hazlett's No 1 Dougherty heirs, Franklin district, elevation 694 ft.

Nicholas County: Elk River Gas Co.'s No. 1 Lewis Land Co., Jefferson district, elevation 973.4 ft.

Pleasants County: E. S. Gilmore's No. 1 E. H. Scaddin and others, Jefferson district, elevation 855 ft. Columbian Carbon Co.'s No. 2 Ella Hammat and others, Grant district, elevation 704 ft.

Tyler County: George Kearns' No. 2 Joshua Baker, McElroy district, elevation 1,234 ft.

Wayne County: Southern West Virginia Oil & Gas Corp.'s No. 8-B B. J. Prichard, Stonewall district, to be deepened.

Indiana Fields

(Continued from Page 72)

Posey County

La Salle Drilling Co. 1 Peoples Bank, SE NW SE 26-7s-15w, had the top of the Glen Dean at 2,214 ft., and is drilling at 2,250 ft. Brown & Regan 1 Spencer, E½ SE SE 26-7s-15w, is temporarily abandoned at 2,882 ft.

Continental, 1 Ford ..... NE NE NW 35-3s-14w
Swabbed 25 bbl. Perf. 2,170-83, 2,523-27, 2,540-52, and 2,808-26 ft., T.D. 2,942 ft.

Spencer County

Ben Davis 1 Sims, SW SW SE 22-6s-7w, is shut down with a hole full of water at 875 ft. Snell et al 1 Bretz, SE NW SW 3-7s-6w, has a hole full of water at the same depth. L. M. Steele 1 Eidemann, NW NW NE 22-7s-6w, has the top of the Menard at 770 ft., and is drilling at 1,002 ft.

Completions

C. J. Williams et al, 1 Walker .. NE NE NW 6-8s-6w
Dry. Kincaid 755 ft., sand 903-20 ft., T.D.
Floyd Fawcett et al, 1 Mackey ..... SW SW 4-8s-6w
Dry at 1,075 ft.
Damron Bros., 1 Carder ..... NE NE NW 31-5-5w
Dry. Ste. Genevieve 1,073 ft., T.D. 1,210 ft.

OHIO

NEWARK, Ohio, July 8.—Eighteen completions were made in the Ohio fields covered in this report, seven gas wells, six oil wells, and five dry holes. Fair gas wells were reported in Athens, Licking, Lorain, and Tuscarawas counties. Lorain County yields two Berea oil wells at a depth of 160 ft. In Washington County Columbia Carbon Co. et al is drilling at 2,830 ft. on the test located in Palmer Township on Jessie Stoller tract, Section 32.

Athens County, Rome Township: Ohio Fuel Gas 3 W. A. Richardson, Section 1, is a gas well, gaging 1,160,000 cu. ft. in the Keener sand at 1,269 ft. Lodi Township: A. D. Townsend 1 George W. Grim, Fraction 19, second Berea, dry, depth 1,610 ft.

Knox County, Howard Township: Upham Gas Co. 1 F. Samples, Lot 26, first quarter, Clinton dry, depth 2,745 ft.

Newark field, Licking County: Two gas wells were completed on Raccoon Creek at the west corporation line of the city of Newark. Murphy Co. 1 Charles T. Eagon, gaged 2,700,000 cu. ft., Clinton at 2,305-30 ft. Wherle Gas Co. 1 R. C. Lawrence has an open flow of 720,000 cu. ft., Clinton at 2,513-38 ft. Five miles north of Newark in Mary Ann Township, Ohio Fuel Gas Co. 1 Charles H. Wilson, Section 15, made 1,500,000 cu. ft. of gas, open flow, Clinton at 2,577-2,609 ft. Perry Township: William Stricker 11 G. E. Patton, Section 7, 6 bbl. of oil first day after shot, Berea at 786-92 ft. Mary Ann Township: Ridgeway Co. 4 Charles Richards, Lot 5, fourth quarter, made 7 bbl. of oil first day after shot, Berea at 821-30 ft.

Lorain County, Columbia Township: Ohio Fuel Gas Co. 1 C. E. Jones, Lot 63, has an open flow of 1,000,000 cu. ft. of gas from the Clinton sand, depth 2,671 ft. Grafton Township: Forest Oil Co. 1, 2, and 3 Charles W. Wise, Lot 53; No. 1 dry, depth 161 ft.; 2 and 3 each made 20 bbl. of oil naturally, Berea at 120-61 ft. and 134-64 ft., respectively.

Monroe County, Benton Township: David Mills 1 Jennie Wilson, Section 23, dry at 790 ft. Bethel Township: Luburgh Co. completed a 5-bbl. pumper in the Cow Run sand at 616 ft. on the Henry Swartz, Jr., tract in Section 10.

Perry County, Clayton Township: Preston Oil Co. 3 A. C. Randolph, Section 17, made 45 bbl. of oil the first 24 hours after shot, Clinton at 3,191-3,233 ft.

Tuscarawas County, Sandy Township: East Ohio Gas Co. 1 Muskingum Conservancy district, Lot 46, made an open flow of 1,170,000 cu. ft. of gas, Clinton at 4,671-95 ft. Lawrence Township: Natural Gas Co. of West Virginia 1 W. M. Evans, Lot 10, is a small gas well in the Clinton, gaging 110,000 cu. ft., open flow, depth 4,680 ft.

Washington County, Grandview Township: Knob Oil & Gas Co. 2 Alice Algeo, Section 21, is a 1-bbl. pumper in the Injun at 1,677-83 ft.

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WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S.T.R.	Depth	Status
Union Oil, No. 5 Le Roy, Santa Maria, Santa Barbara	14-10-35	....	rigged up
Petrol Corp., No. 1 School, Santa Maria, S. Barbara	27-10-34	....	rig
Tide Water A. O., No. 1 Sousa, Lompoc, Santa Barbara	12- 6-33	....	rig
Texas Co., No. 1 Bishop, Goleta, Santa Barbara	13- 4-29	....	rig
El Rancho Oil, No. 4 Elkins, Shiells Canyon, Ventura	9- 3-19	3,040	pump. test
Santa Clara Oil, No. 1 Well, Shiells Canyon, Ventura	3- 3-19	3,245	cleaning out
Gerard, C. F., No. 1 Goodenough, Fillmore, Ventura	18- 4-19	....	rigged up
Continental Oil, No. 18 Grubb, San Miguelito, Ventura	24- 3-24	....	rig
C. C. M. Oil, No. 33-B Hobson, Rincon, Ventura	8- 3-24	....	rigging up
C. C. M. Oil, No. 34-B Hobson, Rincon, Ventura	16- 3-24	5,052	flow 715 b.d.
C. C. M. Oil, No. 35-B Hobson, Rincon, Ventura	16- 3-24	5,135	flow 360 b.d.
Tide Water A. O., No. 7 V.L.W., Vent. Ave., Ventura	23- 3-23	7,770	O.S. drlg.
Tide Water A. O., No. 47 V.L.W., Vent. Ave., Ventura	24- 3-23	....	rig
Tide Water A. O., No. 22 Hartman, Vent. Ave., Vent.	22- 3-23	9,130	completing
Tide Water A. O., No. 23 Hartman, Vent. Ave., Vent.	22- 3-23	....	rig
Tide Water A. O., No. 25 Hartman, Vent. Ave., Vent.	22- 3-23	7,407	flow 230 b.d.
Tide Water A. O., No. 27 Hartman, Vent. Ave., Vent.	22- 3-23	6,575	rigging up
Shell Oil, No. 119 Taylor, Ventura Ave., Ventura	29- 3-23	7,715	flow 3,744 b.d.
Shell Oil, No. 123 Taylor, Ventura Ave., Ventura	29- 3-23	....	rig
Cal. Alliance Pet., No. 1 Schmidt, Vent. Ave., Vent.	21- 3-23	9,569	dry; abd.
British American Oil, No. 1 Barn., Vent. Ave., Vent.	22- 3-23	8,990	O.S. drlg.
Lloyd Corp., No. 6 Dabney, Ventura Ave., Ventura	23- 3-23	....	rigging up
Hoyt, Otis, No. 1 Young, McKittrick, Kern	6-30-22	2,526	cleaning out
Santa Mora Oil, No. 1 Joint, Belridge, Kern	10-28-20	....	rig
Continental Oil, No. 4 Result, North Belridge, Kern	36-27-20	8,294	O.S. drlg.
Jergins Oil, No. 5-A, McCowan, Edison, Kern	13-30-29	1,594	rig to pump
Universal Consd. Oil, No. 3 Cattani, Arvin, Kern	15-31-29	6,140	flow 528 b.d.
Mesa Pet., No. 1 Dixon, Fruitvale, Kern	27-29-27	3,299	deepening
Union Oil, No. 2-34, KCL, Rio Bravo, Kern	34-28-25	....	rigging up
Union Oil, No. 56-34, KCL, Rio Bravo, Kern	34-28-25	11,419	completing
Union Oil, No. 63-34, KCL, Rio Bravo, Kern	34-28-25	11,478	flow 950 b.d.
Superior Oil, No. 1-1 Osborn, Rio Bravo, Kern	28-28-25	....	rig
Superior Oil, No. 1 Realty, Rio Bravo, Kern	33-28-25	....	rig
Superior Oil, No. 1 Mandell, Rio Bravo, Kern	27-28-25	....	rig
Superior Oil, No. 2 Smith, Rio Bravo, Kern	34-28-25	....	rig
Superior Oil, No. 1 Brandt, Greeley, Kern	28-29-26	11,199	hd. sh. drlg.
Shell Oil, No. 8-19-A, KCL, Ten Section, Kern	19-30-26	8,190	P.B. 8,097
Ohio Oil, No. 19-E, KCL, Canal, Kern	13-30-25	8,248	flow 270 b.d.
Richfield Oil, No. 14-28-A, KCL, Tupman, Kern	28-30-25	....	rigging up
Richfield Oil, No. 18-28-A, KCL, Tupman, Kern	28-30-25	9,025	completing
Richfield Oil, No. 56-28-A, KCL, Tupman, Kern	28-30-25	....	bldg. rig
Richfield Oil, No. 58-28-A, KCL, Tupman, Kern	28-30-25	9,225	flow 1,625 b.d.
Richfield Oil, No. 74-30-A, KCL, Tupman, Kern	30-30-25	....	rig
Richfield Oil, No. 76-30-A, KCL, Tupman, Kern	30-30-25	....	rig
Richfield Oil, No. 34-32-A, KCL, Tupman, Kern	32-30-25	....	rig
Richfield Oil, No. 54-32-A, KCL, Tupman, Kern	32-30-25	....	rig
Richfield Oil, No. 72-32-A, KCL, Tupman, Kern	32-30-25	9,020	flow 1,300 b.d.
Richfield Oil, No. 16-33-A, KCL, Tupman, Kern	33-30-25	....	bldg. rig
Richfield Oil, No. 61-33-A, KCL, Tupman, Kern	33-30-25	....	rigging up
Richfield Oil, No. 36-29-A, KCL, Tupman, Kern	29-30-25	....	rigging up
Richfield Oil, No. 38-29-A, KCL, Tupman, Kern	29-30-25	8,610	O.S. drlg.
Richfield Oil, No. 54-29-A, KCL, Tupman, Kern	29-30-25	....	rig
Richfield Oil, No. 56-29-A, KCL, Tupman, Kern	29-30-25	....	rig
Standard Oil, No. 20-6, KCL, Cole's Levee, Kern	5-31-25	9,484	O.S. drlg.
Standard Oil, No. 20-7, KCL, Cole's Levee, Kern	9-31-25	....	rig
Foster, R., No. 1 Hollingsworth, Midway-Sunset, Kern	22-32-23	2,365	sd. sh. drlg.
Texas Co., No. 40 Midway, Midway-Sunset, Kern	32-32-24	3,210	pump 147 b.d.
Exeter Oil, No. 8 Murphy, Midway-Sunset, Kern	28-32-24	3,137	pump 15 b.d.
Mascot Oil, No. 56 fee, Midway-Sunset, Kern	26-32-23	....	rigging up
McDonald, J., No. 21 Midway, Midway-Sunset, Kern	26-31-22	....	rig
Western Gulf-Texas, No. 74-3-A, KCL, Paloma, Kern	3-32-26	10,706	testing
Western Gulf-Texas, No. 34-2, KCL, Paloma, Kern	2-32-26	....	rig
Richfield Oil, No. 1 Ranch, Tejon Ranch, Kern	2-10-19	6,688	fish D.P.
Kern Line Pet., No. 1 Tejon, Wheeler Ridge, Kern	19-11-19	....	rigged up
Jergins Trust, No. 1 Cheney, Panoche Creek, Fresno	29-14-13	9,225	P.B. 6,700
Texas Co., No. 1 S.P., Turk anticline, Fresno	23-17-15	10,116	P.B. 9,413
Tide Water A. O., No. 23 Guardian, E. Coal'ga, Fresno	2-20-15	....	rig
Standard Oil, No. 68-7-B fee, NE. Coalinga, Fresno	7-19-16	....	rigging up
Standard Oil, No. 64-19-B fee, NE. Coalinga, Fresno	19-19-16	....	rigged up
Standard Oil, No. 84-19-B fee, NE. Coalinga, Fresno	19-19-16	....	rigged up
Pure Oil, No. 44-30-B Schwinn, NE. Coalinga, Fresno	30-19-16	8,200	flow 2,000 b.d.
Wilshire Oil, No. 62-30-B, NE. Coalinga, Fresno	30-19-16	8,305	completing
Bandini Pet., No. 71-30-B, NE. Coalinga, Fresno	30-19-16	8,256	flow 575 b.d.
Lytle, R. S., Agent, No. 77-18-F, SE. Coalinga, Fresno	18-20-16	7,900	flow 1,933 b.d.
Univ. Consd. Oil, No. 72-24-C, SE. Coalinga, Fresno	24-20-15	7,844	flow 2,500 b.d.
Standard Oil, No. 68-13-C fee, SE. Coalinga, Fresno	13-20-15	7,900	O.S. drlg.
Standard Oil, No. 7-17-F fee, SE. Coalinga, Fresno	17-20-16	....	rig
Standard Oil, No. 22-17-F fee, SE. Coalinga, Fresno	17-20-16	7,940	O.S. drlg.
Standard Oil, No. 1-19-F fee, SE. Coalinga, Fresno	19-20-16	7,846	O.S. drlg.
Standard Oil, No. 71-19-F fee, SE. Coalinga, Fresno	19-20-16	....	rigged up
Superior Oil, No. 4-B Cagle, SE. Coalinga, Fresno	6-20-16	....	rig
Superior Oil, No. 5-B Cagle, SE. Coalinga, Fresno	6-20-16	7,395	O.S. drlg.
Lytle, R. S., agt., No. 5 Felix, Ket'man N. Dome, Kings	35-21-17	....	rigging up
Union Oil, No. 9 King, Kettleman N. Dome, Fresno	29-21-17	10,914	O.S. drlg.
K. N. D. A., No. 23-26-Q, Kettleman N. Dome, Kings	26-22-18	....	rig
K. N. D. A., No. 58-26-Q, Kettleman N. Dome, Kings	26-22-18	8,485	testing
Standard Oil, No. 334-13-H, Ket'man N. Dome, Fresno	13-21-16	....	rigged up
Standard Oil, No. 321-29-J, Ket'man N. Dome, Fresno	29-21-17	10,653	flow 263 b.d.
Standard Oil, No. 334-29-J, Ket'man, N. Dome, Fresno	29-21-17	10,080	sd. sh. drlg.
Standard Oil, No. 74-27-Q, Kettleman N. Dome, Kings	27-22-18	....	rig
Standard Oil, No. 1-1-U, Kettleman N. Dome, Kings	1-23-18	....	rig
Tide Water A. O., No. 1 W. Sʼpe, Pyramid Hills, Kings	20-24-18	950	pump 10 b.d.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S.T.R.	Depth	Status
Union Oil, No. 3 Austin, Dominguez, Los Angeles	32- 3-13	7,540	O.S. drlg.
Union Oil, No. 4 Austin, Dominguez, Los Angeles	32- 3-13	....	rig
Seaport Oil, No. 1 Dasteel, Dominguez, Los Angeles	32- 3-13	8,209	P.B. 8,121
Midfield Oil, No. 1 Pedro, Rosecrans, Los Angeles	20- 3-13	....	rigged up
Mission Oil, No. 1 Pierce, Rosecrans, Los Angeles	20- 3-13	8,557	completing
Rainbow Drlg., No. 21 Crawford, Rosecrans, L. Ang.	19- 3-13	....	rigged up
So. Cal. Pet., No. 2 Rowena, Rosecrans, Los Angeles	19- 3-13	7,774	flow 1,675 b.d.
St. Anthony Oil, No. 2 Gordon, Rosecrans, L. Angeles	19- 3-13	7,854	O.S. drlg.
Chicago Oil, No. 1 Founders, Rosecrans, Los Angeles	20- 3-13	7,963	P.B. 7,335
Thorley Oil, No. 1 Athens, Rosecrans, Los Angeles	7- 3-13	7,851	O.S. drlg.
Bush Oil, No. 1 Sentous, Inglewood, Los Angeles	17- 2-14	7,355	may abdn.
Tide Water A. O., No. 15 Porter, Aliso Canyon, L. A.	27- 3-16	5,500	flow 1,450 b.d.
Tide Water A. O., No. 22 Porter, Aliso Canyon, L. A.	27- 3-16	5,088	O.S. drlg.
Brit. Amer. Oil, No. 1 Perkins, Newhall, Los Angeles	14- 3-16	6,196	P.B. 5,834
Continental Oil, No. 2 Howell, Newhall, Los Angeles	35- 3-16	....	rig
General Pet., No. 2 P.E., Wilmington, Los Angeles	35- 4-13	3,790	pump 90 b.d.
General Pet., No. 19 S.P., Wilmington, Los Angeles	35- 4-13	....	rig
Atlantic Oil, No. 16 Harbor, Wilmington, Los Angeles	33- 4-13	5,756	pump 125 b.d.
Continental Corp., No. 8 L.A.C.F.C., Wilmington, L. A.	2- 5-13	....	rig
Continental Corp., No. 9 L.A.C.F.C., Wilmington, L. A.	2- 5-13	3,096	completing
Continental Corp., No. 10 L.A.C.F.C., Wilming'n, L. A.	2- 5-13	....	rigging up
Long Beach Dev., No. 15-W Harbor, Wilming'n, L. A.	10- 5-13	....	rig
Morton & Elder, No. 2 Harbor, Wilmington, L. Ang.	35- 4-13	3,465	O.S. drlg.
Superior Oil, No. 1-B Island, Wilmington, L. Ang.	8- 5-13	6,200	dry; abd.
Union Pacific, No. 142, Wilmington, Los Angeles	3- 5-13	3,978	flow 8,015 b.d.
Union Pacific, No. 143, Wilmington, Los Angeles	3- 5-13	3,984	flow 3,278 b.d.
Union Pacific, No. 146, Wilmington, Los Angeles	3- 5-13	4,043	flow 3,355 b.d.
Union Pacific, No. 147, Wilmington, Los Angeles	3- 5-13	....	bldg. rig
Union Pacific, No. 148, Wilmington, Los Angeles	3- 5-13	....	bldg. rig
Union Pacific, No. 150, Wilmington, Los Angeles	3- 5-13	....	rig
Union Pacific, No. 27-E, Wilmington, Los Angeles	3- 5-13	....	rig
Cal-Pico Oil, No. 1 Durfee, Pico, Los Angeles	7- 2-11	....	rigging up
Kern Oil, No. 42 Monterey, Montebello, Los Angeles	2- 2-12	7,685	O.S. drlg.
Stanley Oil, No. 1 Mont., Montebello, Los Angeles	2- 2-12	7,760	flow 225 b.d.
Exeter Oil, No. 3 Olson, Long Beach, Los Angeles	19- 4-12	4,597	pump 25 b.d.
Texas Co., No. 6 Bauman, Long Beach, Los Angeles	19- 4-12	705	cmtd. 701
Tucker, H. M., No. 1 Heath, Buena Park, Orange	34- 3-11	8,935	dry; abd.
Barth Oil, No. 1 Quarell, East Coyote, Orange	20- 3-9	....	grade
Garliepp, F., No. 3 Yorba, East Coyote, Orange	19- 3-9	3,350	pump 45 b.d.
Master Pet., No. 3 Lempke, East Coyote, Orange	19- 3-9	4,255	O.S. drlg.
Standard Oil, No. 2-14 Coyote, East Coyote, Orange	22- 3-10	....	rigged up
Hathaway Oil, No. 5 Coyote, East Coyote, Orange	17- 3-9	4,286	pump 15 b.d.
Southwest Expl., No. 30 State, Hunt. Beach, Orange	3- 6-11	....	rigged up
Standard Oil, No. 42 Bolsa, Huntington Beach, Orange	34- 5-11	3,328	O.S. drlg.
Surf Associates, No. 2 State, Hunt. Beach, Orange	10- 6-11	....	rig

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
B. ck., bottom choke.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits.
Cd. or Crd., cored.
C.D., correct depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg., or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.S.T., drill-stem test.
D.P., drill pipe.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe-line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Recvd., recovered.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtrk. or St., sidetracked.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel-line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas, and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T. ck., top choke.
T.P., tubing pressure.
Tr., tract.
Tstd., tested.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.O.O., waiting on orders.
W.P., working pressure.
W.S.O., water shutoff.
W.S.O.O.K., water shutoff O.K.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

OKLAHOMA

Week Ended July 6

NORTHERN OKLAHOMA

Beckham County

Fred Coogan's No. 1 Kinchen, SE SE SE Sec. 4-9-25w. Dolo. 3,260 ft.; T.D. 3,718 ft.; to abd.

Caddo County

Sinclair Prairie Oil Co.'s No. 1 Groman, SW NW NW Sec. 1-16-13w, Wlx. 9,179 ft.; sd. 10,074 ft.; Arb. 10,922 ft.; T.D. 11,026 ft.; S.D.O.

Creek County

Indo Oil Co.'s No. 1 Slick, NW NW NW Sec. 1-16-9. S.O. 1,145-78 ft.; T.D. in Dtchr. 2,922 ft.; to test.

Dewey County

Magnolia Pet. Co.'s No. 1 Fiekes, C SW SW Sec. 31-18-14w. T.D. 9,475 ft.; D.P. stk. 8,400 ft.; D.&A.

Garvin County

Roy Starr's No. 1 Shi, NW NE NE Sec. 8-4-3. Drlg. 2,719 ft.

Troup et al's No. 1 Bowie, NW NE SE Sec. 3-4-3. Hntn. 2,692 ft.; Vla. 2,792 ft.; Trtn. 2,875 ft.; T.D. 3,363 ft.; D. &A.

Hughes County

Loual Drlg. Co.'s No. 1 Jackson, C SW NE Sec. 24-9-9. T.D. 3,303 ft.

Kay County

Malarnee Oil Co.'s No. 1 Harris, C SW NE Sec. 14-25-1. Miss. 4,050 ft.; chat with S.O. 4,063-4,105 ft.; wtr. 4,433-40 ft., T.D.; P.B. 4,050 ft.; W.O.C.

Kingfisher County

Phillips Pet. Co.'s No. 1 Grape, C NW SE Sec. 30-18-5w. Layton 5,600 ft.; O.S.W. 4,146 ft.; Miss. 6,670 ft.; drlg. 7,220 ft.

Kiowa County

Gene Burke's No. 1 Morgansen, NW NW SW Sec. 6-2-16w. Drlg. 675 ft.

Wm. Curtis' No. 1-A Hobbs, SE SE NW Sec. 35-6-17w. T.D. 620 ft.; abd.

Southwestern Okla. O. & G.'s No. 2 Foltz, NW SE SE Sec. 10-6-18w. Drlg. 1,635 ft.

Tice Prod.'s No. 1 Fowler, SE SE NW Sec. 10-7-18w. Drlg. 1,205 ft.

Lincoln County

Anderson-Prichard's No. 1 Smith, SE SW NE Sec. 18-15-5. Hntn. 4,278 ft.; Vla. 4,417 ft.; Wlx. 4,480 ft. and 4,514 ft.; T.D. 4,530 ft.; P.B. 3,538 ft.; shot; 5,-600,000 cu. ft. gas; no oil or wtr.; D. &A.

Fields & Nagle's No. 1 Alspaugh, SW SE NW Sec. 35-15-6. T.D. 3,150 ft.; D.&A.

Logan County

Eason Oil Co.'s No. 1 Wells, NE NW NE Sec. 15-16-2w. Lytn. 4,274 ft.; Ckbd. 4,-565 ft.; Miss. 5,409 ft.; Msnr. 5,515 ft.; S.S.O.&G.; Hntn. 5,527 ft.; S.S.O.; drlg. 5,834 ft.

Noble County

Helmerich & Payne's No. 1 Fireshaker, SE SE NE Sec. 11-24-3. Simp. 3,960 ft.; Wlx. 3,965 ft.; sd. and S.S.O. 3,983 ft.; drlg. 4,087 ft.

Okfuskee County

Burke-Greis' No. 1 Dew, NE NE NE Sec. 9-12-9. Prue 1,810 ft.; T.D. 3,318 ft.; rng. csg.

Reese Drlg.'s No. 1 Berryman, NW SW SW Sec. 36-11-8. Drlg. 2,512 ft.

Texas Co.'s No. 1 Cowan, SW cor. Sec 5-11-10. Drlg. 3,463 ft.

Oklahoma County

Continental Oil Co.'s No. 1 Renund, SE SE NE Sec. 24-14-4w. Drlg. 4,060 ft.

Osage County

Mid-Continent Pet. Corp.'s No. 1 Osage, NW NW NE Sec. 18-24-5. Drlg. 3,160 ft.

Norbla et al's No. 1 Osage, NE NE NW Sec. 25-22-9. Drlg. 1,685 ft.

Payne County

Allen et al's No. 1 Freeman, SW SW SE Sec. 24-19-5. Drlg. 2,745 ft.

Burke-Greis' No. 1 Olson, C W½ E½ NW Sec. 26-19-5. Drlg. 2,450 ft.

H. & H. Oil Co.'s No. 1 Linsenmeyer, SE SE SW Sec. 3-18-4. Drlg. 2,060 ft.

Summit Drlg. Co.'s No. 1 Arnold, NW NE NW Sec. 8-19-2. Drlg. 4,897 ft.

Pontotoc County

Crescent Oil Co.'s No. 2 Thompson, NE NW SW Sec. 29-3-4. Drlg. 980 ft.

Garrett's No. 1 Williams, NE cor. Sec. 28-2-4. Drlg. 545 ft.

Kerlyn Oil Co.'s No. 1 Chism, NW SE SE Sec. 24-5-6. S.O. 1,940-70 ft.; T.D. 2,173 ft.; P.B. 1,975 ft.; drld. to 1,984 ft.; fsg.

Morgan et al's No. 1 Brown, SW SW SE Sec. 30-3-5. Vla. 523 ft.; S.S.O. 1,125 ft.; drlg. 1,205 ft.

Pottawatomie County

J. F. Smith's No. 1-A McKnown, SE SW NW Sec. 25-8-4. Hntn. 4,045 ft.; T.D. 4,143 ft.; F. 162 B.O. in 16 hrs.

Thompson Bros.' No. 1 L. Truesdale, SE SE NW Sec. 31-8-5. Earls. 3,486 ft., Msnr. 4,119 ft.; Hntn. 4,121 ft.; Vla. 4,224 ft.; first Wlx. 4,349 ft.; S.S.O.; 2nd Wlx. 4,432 ft.; S. 5 B.F.P.H.

Seminole County

C. E. Davis' No. 1 Key, NE NE SE Sec. 4-11-8. Earls. 2,755 ft.; Crom. 3,612 ft.; T.D. 4,243 ft.; D.&A.

Davis et al's No. 1 Thlocco, NW SW NW Sec. 30-7-7. Drlg. 2,100 ft.

Washita County

Continental Oil Co.'s No. 1 School ld., C NE Sec. 16-8-16w. Drlg. 7,434 ft.

SOUTHERN OKLAHOMA

Atoka County

Kirksey's No. 1 Baskett, SW SE SE Sec. 7-3s-10e. Drlg. 818 ft.

Thompson Bros.' No. 1 Richardson, NE SE SW Sec. 10-3s-9. Hntn. 1,230 ft.; S.O. 1,259 ft.; drlg. 1,700 ft.

Marshall County

May Oil Corp.'s No. 1 Sacrea, SW NE SW Sec. 17-5s-5. T.D. 1,266 ft.; S.D.

Tillman County

Cline et al's No. 1 Staley, SE SE NW Sec. 10-2s-19w. Drlg. 4,300 ft.

H. & M. Drlg. Co.'s No. 1 Swenson, S½ SW NE Sec. 9-18-4w. Miss. 3,021 ft.; H.F.W.; T.D. 3,615 ft.

Progressive Oil's No. 1 Chavez, CWL SW NW Sec. 26-20-2w. Lans. 2,335 ft.; T.D. 3,025 ft.; D.&A.

Westgate-Greenland's No. 1 Lassen, CSL NW SE Sec. 24-17-2w. Miss. 2,818 ft.; S.O.; T.D. 2,859 ft.; D.&A.

Phillips County

Cities Service's No. 1 Ray, NE NW SE Sec. 32-5-20w. Drlg. 3,005 ft.

Pratt County

Cities Service's No. 1 Lehrling, NE SW SW Sec. 19-27-11w. Drlg. 595 ft.

Rice County

Republic Nat. Gas' No. 1 Bean, C E½ NE SW Sec. 23-19-6w. Drlg. 2,960 ft.

Rooks County

Mitchell Drlg. Co.'s No. 1 Vererka, CSL SE SE Sec. 21-8-19w. Tpka. 2,783 ft; Lans. 3,174 ft.; S.S.O. 3,333 ft.; Arb. 3,428 ft.; U.R. 3,325 ft.

Aylward Prod. Co.'s No. 1 Richards, C N½ NW SW Sec. 31-10-18w. M.I.M.

Wakefield et al's No. 1 Diehle, C N½ NW NW Sec. 4-9-17w. Tpka. 2,885 ft.; Lans. 3,140 ft.; U.R. 3,340 ft.

Russell County

Gussman's No. 1 Mudd, CWL NW NE Sec. 16-15-15w. Drlg. 2,880 ft.

Haynes et al's No. 1 Driscoll, CNL SE SW Sec. 30-15-11w. Tpka. 2,685 ft.; Lans. 3,020 ft.; I.P. 646 B.O.P.D.; comp.

Jones Bros.' No. 1 Mahoney, CSL SW SW Sec. 8-14-12w. Tpka. 2,614 ft.; Lans. 2,943 ft.; T.D. 2,980 ft.; H.F.O.; W.O.C.

Pryor & Lockhart's No. 1 Davidson, C E½ NE NW Sec. 12-15-11w. Drlg. 1,235 ft.

Stafford County

Stanolind's No. 1 Ahnert, C W½ SE NE Sec. 10-22-12w. Drlg. 2,905 ft.

Stanolind's No. 1 Roscoe, C N½ NE SE Sec. 15-24-12w. Drlg. 2,117 ft.

MISSOURI

Adair County

Eddington et al's No. 1-A Clark, NE NE SE Sec. 8-63-14w. Miss. 310 ft.; Hunton 739 ft.; Vla. 970 ft.; St. P. 1,135 ft.; Arb. 1,216 ft.; S.D. 1,247 ft.

Eddington-McAlpin's No. 1 Johnson-Capps, SW SW Sec. 31-64-15w. S.D. 1,005 ft.

DeKalb County

American O. & G. Co.'s No. 1 Thompson, SW SW Sec. 30-58n-31w. Drlg. 1,023 ft.

Holt County

Brin & Nathan's No. 1 Decker, C NW NW Sec. 1-61-38w. Miss. 1,865 ft.; drlg. 1,-990 ft.

Livingston County

Chillicothe Syndicate's No. 1 Linton, C W½ SE Sec. 15-56-25w. Drlg. 1,000 ft.

NEBRASKA

Richardson County

Pawnee Royalty Co.'s No. 1 Bucholz, C NW SW Sec. 17-1n-16e. T.D. 2,232 ft. in Hunton; F. 332 B.O. in 24 hrs.

Sparks' No. 1 Horton, C NE NW Sec. 5-1n-15. T.D. 400 ft.

Uhri Oil Co.'s No. 1 Ogle, NE NW SE Sec. 9-1n-14e. Hunton 2,255 ft.; S.O.; T.D. 2,259 ft.; S. 150 B.O.

ARKANSAS

Columbia County

Barnsdall Oil Co.'s No. 1 El Dorado & Wesson R. R. Co., C NW SW Sec. 5-19-18. Set 10¾-in. csg. 2,525 ft.; reported S.S.O. 7,855-65 ft.; drlg. 8,217 ft.

Mid-Continent Pet. Corp.'s No. 1 J. Keith, C SW NW Sec. 16-18-22. Set 16-in. csg. 397 ft.; set 9⅝-in. csg. 4,144 ft.; S.D. 8,334 ft.; high wtr.

Placid Oil Co.'s No. 1-B J. W. Booth, C SE SE Sec. 19-17-19. Set 13⅜-in. csg 135 ft.; cg. por. L. 7,570 ft.

Southwood Oil Co.'s No. 2 H. C. Couch, C S½ SW SW and S½ SE SW Sec. 28-17-20. Cd. S.W. L. 7,643-7,701 ft., T.D.; set 151 ft. 15-in. csg. on bttm.; perf. 7,655-60 ft.; tstg.

Standard Oil Co. of La.'s No. 3-B Longino, 660 ft. W, 560 ft. S, NE cor. SW SE Sec. 18-17-19. Set 9⅝-in. csg. 3,957 ft. drlg. L.&sh. 6,860 ft.

Tide Water Asso. Oil Co.'s No. 1 E. M. Hutcheson, 330 ft. S, 1,320 ft. NE cor. SE Sec. 16-18-19. Set 9⅝-in. csg. 2,-525 ft.

Faulkner County

Cato Oil Co., Inc.'s No. 1 R. R. Harrell, 330 ft. SE cor. SE SW Sec. 35-4n-12w U.R. and set 7-in. csg. 7,370 ft.; S.D. 2,950 ft.

Lafayette County

East Texas Ref. Co.'s No. 2 Bodcaw Lbr. Co., 530 ft. S, 660 ft. E, NW cor. NE NE Sec. 19-18-23. Set 5½-in. csg. 3,365 ft.; T.D. 3,451 ft.; swbd. well; would not flow; acd.; hole full S.W.; S.D.; W.O.

Lonoke County

Lunnon Howell & Ford's No. 1 City of Cabot, C NE Lot 1, Blk. 6, Sec. 18-4n-9w. Set 4¾-in. csg. 878 ft.; drlg. sdy. L. 2,417 ft.

Miller County

Gulf Oil Co.'s No. 1 Eaton, 330 ft. NW cor. SW NE Sec. 14-17-27. Set 10¾-in. csg. 209 ft.; W.O.C.

Standard Oil Co. of La.'s No. 2 W. P. Sturgis, 330 ft. SE cor. NE SW Sec. 1-17s-27w. Cd. 3,515-89 ft.; rd. sh. excepting 3,570-74 ft.; Perm. sat. oil sd.; cg. 3,589 ft.

Ouachita County

Sam Richardson & Co., Inc.'s No. 2 B. Goodwin, NE cor. SW SW Sec. 32-15-15. Set 10-in. csg. 156 ft.; drlg. 2,610 ft.

Saline County

Tedford Drlg. Co.'s No. 2 Cunningham, 1,295 ft. SE of No. 1, Sec. 31-3s-15w. Set 12½-in. csg. 62 ft.; W.O.C.

Union County

Barnsdall Oil Co.'s No. 1 North Central Texas, 272 ft. S, 327 ft. E, NW cor. Sec. 5-18-14. O.W.D.D.; O.T.D. 3,838 ft.; R.U. to dpn.

J. H. Coker and J. P. Grieves et al's No. 1 C. L. Smith, 330 ft. SW cor. NE NW Sec. 32-17-14. Set 10¾-in. csg. 225 ft.; cd. 3,491-3,501 ft.; rec. 1 ft. hd. sh., 2 ft. soft sh., 1 ft. volc. ash, 3½ ft. sdy. ash, strks. sh., good stain and odor; D.S.T. 3,453-3,501 ft.; seat failed; S.D. 3,541 ft.; high wtr.

Fohs Oil Co.'s No. 2 C. T. Grace, 330 ft. NW cor. SW SE Sec. 31-17-14. Set 10¾-in. csg. 814 ft.; W.O.C.

Marine Oil Co.'s No. 11-A Thompson, 430 ft. N, 330 ft. E, SW cor. SW SE Sec. 3-18-13. Cd. oil sd. 3,000-07 ft.; D.S. tstd. oil; cd. stks. oil sd. 3,198-3,207 ft. and 3,318-33 ft.; D.S.T. 3,318-33 ft. rec. 1,300 ft. S.W. cut with oil, 900 ft. S. W.; cd. stks. sat. sd. 3,568-83 ft.; set 7-in. csg. 3,550 ft.; W.O.C.

Standard Oil Co. of La.'s No. 1 D. A. Zimmerman, 660 ft. SE cor. SE SE Sec. 29-18s-16w. Set 13⅜-in. csg. 227 ft.; T. oil sd. 6,783 ft.; cd. to 6,799 ft. and made D.S.T. 6,764-88 ft.; used ¼-in. cks. T.&B.; rec. in 15 min. 420 ft. mud and oil and 1,260 ft. S.W.; cd. 7,655-65 ft., S.W. sd.; drld. to 7,786 ft.; cd. 7,786-96 ft., S.W. sd.

KANSAS

Week Ended July 6 (Descriptions are East unless marked otherwise)

Barber County

Finston's No. 1 Pichner, CEL NE SW Sec. 24-16-11w. Lans. 3,067 ft.; Arb. 3,376 ft.; T.D. 3,400 ft.; R.U.S.T.

Sinclair-Prairie Oil Co.'s No. 1 Binning, C S½ SE SW Sec. 26-32-13w. Tpka. 3,-045 ft.; Lans. 3,930 ft.; Miss. 4,430 ft.; Vla. 4,769 ft.; Simp. 4,857 ft.; Arb. 4,-975 ft.; cd. to 5,004 ft.; N.S.; T.D. 5,-083 ft.; rng. 7-in.

Barton County

Herndon Drlg.'s No. 1 Hitchmann, C E½ NE NW Sec. 1-17-12w. Drlg. 2,255 ft.

Robertson's No. 1 Miller, CWL SW NE Sec. 4-16-14w. Drlg. 1,695 ft.

Butler County

Jocelyn et al's No. 1 Hall, CSL NE SW Sec. 7-29-7. Drlg. 1,080 ft.

Cowley County

McKnab's No. 1 Lemert, CWL NW SE Sec. 11-34-4. Miss. 3,078 ft.; 3,000,000 cu. ft. gas 3,089 ft.; drlg. 3,385 ft.

Markey et al's No. 1-A Hunt, SW SW NE Sec. 16-34-5. T.D. in Miss. 3,265 ft.; D.&A.

I. W. Murfin's No. 1 Jarvis, N½ SW NE Sec. 19-31-5. Miss. 2,930 ft.; T.D. 3,376 ft.; D.&A.

Stewart et al's No. 1-A Ehmke, C W½ NW NW Sec. 14-32-3. Drlg. 2,995 ft.

Trees Oil's No. 1 Orr, NW NE NW Sec. 17-30-4. 8-in. 2,175 ft.

Douglas County

Forrester et al's No. 1 Altenbernd, CSL NW Sec. 35-12-20. Est. 2 B.O.P.D. at 720 ft.

Forrester et al's No. 1 Ice, SW SW SE Sec. 9-14-19. Drlg. 130 ft.

Kerlyn Oil Co.'s No. 1 Whedon, C NE NE Sec. 20-13-20. T.D. 719 ft.; D.&A.

Ellsworth County

Emerich et al's No. 1 Hagy, C W½ SW NE Sec. 20-16-10w. Lans. 3,020 ft.; Arb. 3,326 ft.; T.D. 3,349 ft.; S. 6 B.O.P.H.

Palmer Oil Corp.'s No. 1 Stratman, C E½ NE SW Sec. 15-17-10w. Tpka. 2,-640 ft.; Lans. 2,981 ft.; Arb. 3,354-75 ft.; N.S.; D.&A.

Greenwood County

Ashlock et al's No. 2-A Lindemood, NE NW SW Sec. 7-25-13. Pay 1,613-20 ft. T.D.; est. P. 12 B.O. and 20 B.W.P.D.; comp.

Kearny County

Stanolind O. & G. Co.'s No. 1 Judd, C SE SE Sec. 15-21-38w. S.D. 4,467 ft.

McPherson County

Bay Pet. Co.'s No. 1 Coons, C W½ SW SW Sec. 13-19-1w. Lans. 2,312 ft.; Miss. 2,906 ft.; T.D. 3,425 ft.; N.S.; to P.B.

Broadwater, Inc.'s No. 1 Heaton, C E½ SE SE Sec. 28-17-1w. Tpka. 1,558 ft.; drlg. 2,400 ft.

LOUISIANA

NORTH LOUISIANA

Bienville Parish

Ark.-La. Gas Co.'s No. 1-C Thomas, 710 ft. N, 1,273 ft. E, SW cor. NW Sec. 24-16-10. Set 9⅝-in. csg. 1,229 ft.; drlg. L.&sh. 3,860 ft.

Union Prod. Co.'s No. 1 Havis Unit, 150 ft. N and W of SE line NW NW Sec 11-16-10. Set 9⅝-in. csg. 1,326 ft.; W. O.C.

Bossier Parish

L. K. McGriffin's No. 1 Tomlinson, 990 ft. S, 600 ft. E, C Sec. 16-18-11. Set 10-in. csg. 40 ft.; W.O.C.

R. L. Reese et al's No. 1 Bellevue Ld. Co., 170 ft. E, 365 ft. N, C Sec. 27-20-11. Set 10-in. csg. 100 ft.; reported S. O. in Tokio 2,672-88 ft.; D.S.T. 2,665-2,705 ft.; dry; cg. 2,784 ft.

T. G. Shaw, Tr.'s No. 1 Mehaffey, Sec. 27-19-11. Drlg. sdy. sh. 1,365 ft.

Caddo Parish

J. W. Brown's No. 3 Wells, Sec. 10-21-16. Set 7-in. csg. 1,584 ft.; W.O.C.

Chastain & Meier's No. 1 Crystal fee, Sec. 24-21-16. Set 8-in. csg. 1,001 ft.; W.O.C.; tstg. 1,007 ft.

J. M. Conner's No. 1-A Williams, 334 ft. N, 986 ft. W, SE cor. NE Sec. 3-15-15. Set 10¾-in. csg. 400 ft.; drlg. anhy. 4,836 ft.

R. B. Creager's No. 1-A Muslow, Sec. 31-21-15. Set 7-in. csg. 1,430 ft.; W.O.C.

Davis & Hart's No. 1-A Muslow, Sec. 9-20-15. Set 10-in. csg. 60 ft.; set 7-in. csg. 1,303 ft.; W.O.C.

H. H. Groneman's No. 2 Browning, Sec. 28-22-16. Drlg. 1,517 ft.

L. Halbfass' No. 1-B Knight Oil & Ld. Co. Sec. 1-21-16. Set 10-in. csg. 60 ft.; T.D. 2,381 ft.; S.D.; W.O.

F. G. Holcomb's No. 1 Sims, Sec. 3-20-16. Set 6⅝-in. csg. 1,004 ft.; tstg. 1,007 ft.

Juan & McFatrick's No. 2-A Hobbs, Sec.

28-21-15. Set 7-in. csg. 1,433 ft.; T.D. 1,578 ft.; W.O.S.R.
R. L. Milam's No. 2 Bickham, Sec. 28-21-15. Set 5½-in. csg. 1,390 ft.; drlg. plug 1,540 ft.
M. L. Miller's No. 1 Muslow, Sec. 31-21-15. Set 7-in. csg. 1,406 ft.; T.D. 1,568 ft.; arng. acd. 1,568 ft.
G. H. Neighbors' No. 1 Richardson, Sec. 36-21-16. Set 6⅝-in. csg. 1,335 ft.; T.D. 1,575 ft.; acd.; tstg.
Sklar Oil Corp.'s No. 4 Hobbs, Sec. 21-21-15. Set 6⅝-in. csg. 1,365 ft.; W.O.C.
Stanolind O. & G. Co.'s No. 2 Noel est., Sec. 25-21-15. 5½-in. csg. 1,423 ft.; T. D. 1,556 ft.; acd.; W.O.S.R.
E. A. Stiller et al's No. 4 Stiles, Sec. 28-21-16. Cg. 1,513 ft.
L. L. Sugar's No. 1-A Muslow, Sec. 31-21-15. Drlg. sh. 627 ft.
L. L. Sugar's No. 2-B Muslow, Sec. 32-21-15. Set 6-in. csg. 1,375 ft.; W.O.C. 1,558 ft.
Texas Co.'s No. 23-B Noel, Sec. 14-21-15. Set 6⅝-in. csg. 1,506 ft.; W.O.C.
G. A. White's No. 1 Muslow, Sec. 31-21-15. Set 10-in. csg. 40 ft.; 7-in. csg. 1,405 ft.; T.D. 1,550 ft.; will acd.

Catahoula Parish

H. L. Hunt's No. 1-A La. Central, C SW SW Sec. 26-10-6e. R.U.

Claiborne Parish

Ohio Oil Co.'s No. 15 G. W. Taylor Acct. 1, 100 ft. S and W, C SE Sec. 15-23-8. Set 13⅜-in. csg. 980 ft.; T. James L. 4,789 ft.; cd. L., S.W. 4,789-4,811 ft.; T. Pett. L. 5,206 ft.; D.S.T. 5,208-31 ft.; ⅜-in. cks. T.&B.; tool open 28 min.; no W.P.; rec. 3½ jts. mud cut with oil; set 9⅝-in. csg. 5,970 ft.; drlg. hd. rd. sh. 7,039 ft.

Grant Parish

Peterson Pet. Corp.'s No. 1 Swope, 182 ft. N, 85 ft. W, SE cor. NW SE Sec. 18-9-1e. T. Wlx. 1,604 ft.; broken oil sd. 1,604-09 ft.; T.D. 1,609 ft.; set 7-in. csg. 1,603 ft.; W.O.C.

La Salle Parish

O. K. Allen, Jr., et al's No. 1 Breedlove. C SW NE Sec. 32-11-3e. Set 10¾-in. csg. 100 ft.; T. Wlx. 1,600 ft.; T.D. 1,660 ft., S.D.; perf. 2,232-38 ft.; tstd. 13 B.F.P.H.; ¼-in. ck.; 25% S.W.; took side-wall cores, N.S.; dpnd. to 2,436 ft. and S.D.
Ark. Fuel Oil Co.'s No. 1 Cruse, 610 ft. N, 660 ft. E, SW cor. Sec. 19-10-3e. Set 10¾-in. csg. 202 ft.; cg. 2,207 ft.
Ark. Fuel Oil Co.'s No. 1 Gandy unit, 606 ft. N, 662 ft. E, SW cor. SE Sec. 12-10-2e. Set 10¾-in. csg. 192 ft.; set csg. 2,246 ft.; W.O.C.
La Salle Asso., Inc.'s No. 1 fee, 205 ft. N, 30 ft. W, SE cor. SW SW Sec. 19-10-2e. Set 7-in. csg. 1,580 ft.; W.O.S.R. 1,590 ft.
Peterson Pet. Corp.'s No. 1 Tremont Lbr. Co., C NE SW Sec. 25-9-2e. Set 10¾-in. csg. 140 ft.; cg. 2,365 ft.
Placid Oil Co.'s No. 19 La. Central, C NE NW Sec. 36-10n-2e. Set 10¾-in. csg. 100 ft.; tstd. mud and oil 2,230-48 ft.; gas sds. 2,298-2,329 ft., 2,755-64 ft. and 2,814-28 ft.; oil sds. 2,764-78 ft. and 2,-784-88 ft.; blew out and running wild at 3,500 ft.
Placid Oil Co.'s No. 7 Goodpine, C SE SW Sec. 18-10-3e. R.U.
Fred Stovall, Tr.'s No. 1 Russell, 200 ft NW cor. SE SE Sec. 25-10-1e. Set 10-in. csg. 60 ft.; S.D. 275 ft.
G. W. Ziegen's No. 17 La. Central, C NW NE Sec. 36-11-2e. T.D. 2,500 ft.; S.D.

Morehouse Parish

Southern Carbon Co.'s No. 32 Tensas, Sec. 28-22-4e. Drlg. 737 ft.

Ouachita Parish

Interstate Nat. Gas Co.'s No. 98 fee, Sec. 44-19-3e. Set 8-in. csg. 776 ft.; W.O.C.

Sabine Parish

Major Oil Co.'s No. 1 Laroux, 330 ft. NE cor. SE NE Sec. 36-8-13. Set 7-in. csg. 2,215 ft.; T.D. 2,630 ft.; arng. tst.
Geo. L. Pace's No. 5 DeSoto, 330 ft. NE cor. SE Sec. 27-10-13. Set 7-in. csg. 1,-940 ft.; T.D. 1,972 ft.; W.O.S.R.

Union Parish

N. & W. Corp.'s No. 1 Holl, Sec. 21-21-3e. Set 12½-in. csg. 155 ft.; W.O.C.

Webster Parish

W. C. Feazel's No. 1 Tillman, 1,320 ft. NW cor. NE Sec. 11-17-9. Set 9⅝-in. csg. 2,190 ft.; drlg. 2,216 ft.
Hunt Oil Co.'s No. 2 Scott, 1,980 ft. N. 50 ft. E, SW cor. Sec. 20-21-9. Set 13⅜-in. csg. 610 ft.; drlg. sh.&sd. 7,533 ft.
Hunt Oil Co.'s No. 6 E. L. Stewart, 200 ft. NW C NE SE Sec. 30-21-10. Set 9⅝-in. csg. 5,606 ft.; "D" sd. 8,419-44 ft. (dist.); Bodcaw sd. 8,519-43 ft. (dist.); set 7-in. csg. 8,518 ft.; W.O.C. 8,569 ft.
Midstates Oil Corp.'s No. 1 Giddens unit 282 ft. N and W. C SW NE Sec. 30-21-9. Set 9⅝-in. csg. 5,620 ft.; drlg. sdy. sh. 6,628 ft.

SOUTH LOUISIANA FIELDS

Anse La Butte—St. Martin Parish

Acadian Prod. Co.'s No. 1 Begneaud Oil Co., Sec. 113-9s-5e. Loc.
O. D. Dyer et al's No. 1 Patrick, Sec. 71-9s-5e. R.U.
Glassell & Glassell's No. 2 Moresy, Sec. 46-9s-5e. Drlg. 2,030 ft.
Glassell & Glassell's No. 1 Tortoris, Sec. 122-9s-5e. Drlg. sh. 8,179 ft.
Iberia Pet. Corp.'s No. 2 A. Mores, Sec. 118-9s-5e. Drlg. sh. 1,420 ft.
Rice Drlg. Co.'s No. 2 Dupuis, Sec. 46-9s-5e. R.U.
Stanolind O. & G. Co.'s No. 1 Bergeron, Sec. 121-9s-5e. Drlg. sh. 3,439 ft.

Barataria—Jefferson Parish

California Oil Co.'s No. 1 La. Truck & Orange Co., Sec. 15-15s-23e. 10¾-in. csg. 2,011 ft.; drlg. sh. 8,027 ft.

Bateman Lake—St. Mary Parish

Texas Co.'s No. 1 Michael, Sec. 17-16s-12e. Drlg. sh. 4,716 ft.

Baton Rouge—East Baton Rouge Parish

Wm. Helis et al's No. 1 J. H. Dearing, Sec. 65-7s-1w. T.D. 7,230 ft.; abd.
Wm. Helis' No. 9-A Duplantier, Sec. 65-7s-1w. Drk.
Sugarfield Oil Co.'s No. 1 Community, Sec. 46-7s-1e. Loc.
Sugarfield Oil Co.'s No. 1 Rosebush, Sec. 46-7s-1e. T.D. 6,813 ft.; 7-in. csg. 6,813 ft.; perf. csg. 6,773-6,802 ft.; I.P. 175 B.P.D., ⅛-in. ck.

Bayou Blue—Iberville Parish

T. G. Markley and Crosby Drlg. Co.'s No. 2 Baiste, Sec. 74-9s-10e. T.D. 3,695 ft.; 7-in. csg. 1,238 ft.; went dead; S.D.
T. G. Markley and Crosby Drlg. Co.'s No. 3 Baiste, Sec. 74-9s-10e. Drk.; T.D. 1,600 ft.
Superior Oil Co.'s No. 1 E. B. Schwing, Sec. 73-9s-10e. T.D. 8,362 ft.; P.B.: sdtrkd.; T.D. 9,131 ft.

Bayou Bouillon—St. Mary Parish

Transcontinental Oil Co.'s No. 6 State, Sec. 13-9s-8e. Spudded.

Bayou Choctaw—Iberville Parish

Standard Oil Co. of La.'s No. 2 Cypress, Sec. 28-8s-11e. 10¾-in. csg. 2,250 ft. T.D. 8,609 ft.; P.B.; sdtrkd.; T.D. 8,810 ft.; 6-in. csg. 8,600 ft.; perf. csg. 8,470-80 ft.; I.P. 299 B.P.D., ⅛-in. ck.

Bayou des Glaise—Iberville Parish

Humble O. & R. Co.'s No. 3-B Wilberts & Sons, Sec. 78-8s-8e. Loc.

Delta Farms—La Fourche Parish

Texas Co.'s No. 1 State Bayou, Sec. 17s-23e. Loc.

Bay St. Elaine—Terrebonne Parish

Jefferson Lake Sulphur Co.'s No. 1 Salt Dome Royalties, Sec. 8-22s-18e. Cg. 1,-139 ft.
Texas Co.'s No. 4-B State, Sec. 13-22s-17e. T.D. 6,974 ft.; 7-in. csg. 6,911 ft.

Caillou Island—Terrebonne Parish

Texas Co.'s No. 13 State, Sec. 20-23s-20e T.D. 5,477 ft., salt; perf. csg. 3,739-68 ft.; I.P. 35 B.P.D., ⅛-in. ck.
Texas Co.'s No. 67 State, Sec. 20-23s-20e 10¾-in. csg. 2,436 ft.

Chacahoula—La Fourche Parish

Sun Oil Co.'s No. 2 Cypress, Sec. 75-15s-15e. 13⅜-in. csg. 1,815 ft.; T.D. 8,016 ft., run 9⅝-in. csg.
Sun Oil Co.'s No. 5 Dibert, Stark & Brown Cypress Co., Sec. 70-15s-15e. 10¾-in. csg. 1,831 ft.; sdtrkd.; T.D. 6,494 ft.; 7-in. csg. 6,494 ft.; perf. csg. 6,360-85 ft.

Chalkley Field—Cameron Parish

Humble O. & R. Co.'s No. 9 Hanzen, Sec. 9-12s-6w. T.D. 8,805 ft. 5½-in. csg. 8,687 ft.; perf. csg. 8,659-63 ft.; I.P. 21 bbl. fluid P.H., 8 per cent S.W., 5/32-in. ck.
Humble O. & R. Co.'s No. 11 Hanszen, Sec. 9-12s-6w. Drlg. sh. 5,520 ft.
Shell Oil Co., Inc.'s No. 2 Sweet Lake Ld. & Oil Co. Drlg. sdy. sh. 5,060 ft.

Cheneyville—Rapides Parish

Amerada Pet. Corp.'s No. 11 Well, Sec. 53-1s-2e. Drlg. sh. 4,486 ft.

Darrow—Ascension Parish

Humble O. & R. Co.'s No. 4-B Community, Sec. 47-10s-2e. Drlg. sh. 4,096 ft.

Edgerly—Calcasieu Parish

Emerson Oil Corp.'s No. 3 Stanolind fee Sec. 28-9s-11w. Drlg. L. 3,714 ft.

Eola—Avoyelles Parish

Amerada Pet. Corp.'s No. 1 Beverly, Sec. 45-1s-2e. T.D. 8,570 ft.; 5½-in. csg. 8,-569 ft.; perf. csg. 8,518-51 ft.; I.P. 374 bbl. 19 hrs., ¼-in. ck.
Amerada Pet. Corp.'s No. 5 Cerami, Sec. 6-2s-3e. Drlg. sh. 4,036 ft.
Amerada Pet. Corp.'s No. 1 Dent-Howell. Sec. 1-2s-2e. T.D. 8,565 ft.; 5½-in. csg. 8,563 ft.; perf. csg. 8,543-57 ft.; I.P. 376 bbl. 12 hrs., ¼-in. ck.
Harry Bass et al's No. 3 Richie Wholesale Gro. Co., Sec. 31-1s-3e. Drlg. sh. 7,087 ft.
Gulf Ref. Co.'s No. 4 Mouliere, Sec. 1-2s-2e. T.D. 8,570 ft.; perf. csg. 8,540-68 ft.; I.P. 356 B.P.D., ⅞-in. ck.; perf. csg. 8,510-64 ft.
Geo. Lilly's No. 2 Dent, Sec. 1-2s-2e. T.D. 8,596 ft.
S. W. Richardson's No. 13 Haas Inv. Co., Sec. 7-2s-3e. T.D. 8,567 ft.; perf. csg. 8,495-8,535 ft.; I.P. 689 B.P.D., ¼-in. ck.

Erath—Vermilion Parish

Texas Co.'s No. 1 Trahan, Sec. 22-13s-4e. 11¾-in. csg. 2,085 ft.; cg. sh. 11,226 ft.

Fausse Point—Iberia Parish

Sun Oil Co.'s No. 3 Kling, Sec. 26-11s-8e. Cg. 1,096 ft.
Sun Oil Co.'s No. 2 Planters Lbr. Co., Sec. 27-11s-8e. 10¾-in. csg. 1,436 ft. T.D. 6,519 ft.; salt; 7-in. csg. 6,360 ft.
Texas Co.'s No. 7 State, Sec. 35-11s-8e. T.D. 6,886 ft.; 7-in. csg. 6,886 ft.

Garden Island—Plaquemines Parish

Texas Co.'s No. 47 State, Sec. 38-23s-33e. 10¾-in. csg. 1,217 ft.

Gibson—Terrebonne Parish

Shell Oil Co, Inc.'s No. 9 Pelican. T.D. 8,124 ft.; fsg.

Gillis—Calcasieu Parish

Union Sulphur Co.'s No. 3 McIver, Sec. 14-9s-8w. T.D. 7,140 ft.; perf. csg. 7,004-14 ft.

Golden Meadow—La Fourche Parish

Bateman Drlg. Co.'s No. 1 Theo. Collins, Sec. 12-19s-22e. Loc.
Bennett O. & R. Co.'s No. 2 Authement, Sec. 12-19s-22e. T.D. 8,400 ft.; P.B. 7,746 ft.
Berkshire Oil Co.'s No. 1 Authement, Sec. 12-19s-22e. Drlg. sh. 6,889 ft.
Brownwood's No. 1 Adrian, Sec. 21-19s-22e. T.D. 4,950 ft.; fsg.
F. Dayroult's No. 1 Gillis, Sec. 12-19s-22e. R.U.
Gulf Ref. Co.'s No. 1-A Allen Ld. Co., Sec. 5-20s-22e. Drlg. sh. 9,567 ft.
McMurray Prod. Co.'s No. 1 Daize, Sec. 12-19s-22e. T.D. 5,590 ft.; rmg.
M. H. Marr et al's No. 3 B.&D. unit, Sec. 12-19s-22e. 10¾-in. csg. 2,580 ft.; drlg. sd. 9,673 ft.
Nick Moneta's No. 1 B. J. Collins, Sec. 12-19s-22e. Loc.
C. R. Schuster's No. 1 Hugh Cheramie, Sec. 12-19s-22e. R.U.
Temple Hargrove's No. 6 Gaspard & Rizan, Sec. 9-19s-22e. T.D. 5,500 ft.; 5½-in. csg. 5,500 ft.; perf. csg. 5,169-74 ft. I.P. 250 B.P.D., ¼-in. ck.
Texas Co.'s No. 14 Falgout Holding Co., Sec. 8-19s-22e. Drlg. sh. 7,039 ft.
Texas Co.'s No. 16 Falgout Holding Co., Sec. 9-19s-22e. Drlg. sh. 1,620 ft.
Texas Co.'s No. 12 Golden Meadow, Sec. 78-19s-21e. T.D. 9,250 ft.; sdtrkd.; drlg. sh.&L. 9,394 ft.
Texas Co.'s No. 13 L.L.&E.-Golden Meadows, Sec. 78-19s-21e. Drlg. sdy. sh. 4,-456 ft.

Grand Bay—Plaquemines Parish

Gulf Ref. Co.'s No. 2-A Grand Prairie Lv. dist., Sec. 48-20s-18e. Drlg. sdy. sh. 10,185 ft.
Gulf Oil Co.'s No. 8-A Grand Prairie dist., Sec. 5-20s-19e. Drlg. sh. 7,956 ft.

Grand Lake—Cameron Parish

Amerada Pet. Corp.'s No. 7 State, Sec. 12-13s-4w. Drlg. sh. 1,227 ft.
Superior Oil Co.'s No. 14 State, Sec. 11-13s-4w. T.D. 8,990 ft.; W.O.C.

Gueydan—Vermilion Parish

Fohs Oil Co.'s No. 1 Mulvey Irrig. Co., Sec. 34-11s-1w. Loc.

Hackberry—Cameron Parish

Hanson & Abercrombie's No. 2 Verdin, Sec. 36-12s-10w. T.D. 7,800 ft.; P.B.; sdtrkd.; drlg. sh. 5,436 ft.
Stanolind O. & G. Co.'s No. 22 Cameron Parish, Sec. 16-12s-10w. 7-in. csg. 9,-430 ft.
Stanolind O. & G. Co.'s No. 31 Gulf Ld., Sec. 25-12s-11w. T.D. 5,420 ft.; fsg.
Superior Oil Co.'s No. 2 Kaough. Sec. 31-12s-10w. T.D. 8,304 ft.; run 5½-in. csg.; perf. csg. 7,755-73 ft. and 7,809-42 ft.
Texas Co.'s No. 30 State, Twp. 12s-9w. Drlg. sdy. sh. 7,117 ft.

Jeanerette—St. Mary Parish

Cajun Oil Co.'s No. 1 Citizen, Sec. 59-13s-8e. S.D. 201 ft.

Jefferson Island—Iberia Parish

Texas Co.'s No. 6, Jefferson Island, Sec. 59-12s-5e. Drlg. sd.&sh. 1,620 ft.
Texas Co.'s No. 3 State, Twp. 12s-5e. 7⅝-in. csg. 7,573 ft.; T.D. 8,460 ft.; abd.

Jennings—Acadia Parish

Cherokee Oil Co.'s No. 1 Jennings-Haywood, Sec. 46-9s-2w. S.D. 1,824 ft.
Shell Oil Co., Inc.'s No. 11 Community, Sec. 40. 10¾-in. csg. 1,721 ft.; drlg. sh. 6,718 ft. in sdtrkd. hole.
Stanolind O. & G. Co.'s No. 118 Crowley, Sec. 48-9s-2w. Drlg. sd.&L. 5,082 ft.
Stanolind O. & G. Co.'s No. 20 Houssiere-Latrielle, Sec. 47-9s-2w. Drlg. sh. & L. 6,496 ft.
Welch-Robinson et al's No. 1 Houssiere-Latrielle, Sec. 47-9s-2w. Drlg. sh. 1,400 ft.

Kenilworth—St. Bernard Parish

Vendome Pet. Corp.'s No. 3 Kenilworth. Sec. 76-14s-14e. Drlg. sdy. sh. 10,567 ft.

Lafitte—Jefferson Parish

Texas Co.'s No. 17 Lafitte, Sec. 17-17s-24e. Drlg. sh. 10,006 ft.
Texas Co.'s No. 6 Marrero, Sec. 21-17s-24e. 10¾-in. csg. 1,861 ft.; T.D. 10,651 ft.; 7-in. csg. 4,548 ft.; perf. csg. 4,-390-4,410 ft.
Texas Co.'s No. 4 State, Sec. 28-17s-24e. T.D. 10,358 ft.; 7-in. csg. 10,007 ft.; perf. csg. 9,886-9,910 ft.

La Fourche Crossing—La Fourche Parish

Lisbon-Iberia Oil Co.'s No. 1 Prosper Thibodaux, Sec. 17-15s-17e. T.D. 10.-154 ft.; 7-in. csg. 10,154 ft.; tstd. gas and dist. 10,103-39 ft.; tstg.
Mikton Oil Co.'s No. 3 Martinez, Sec. 13-15s-17e. 10¾-in. csg. 2,700 ft.; T.D. 10,-163 ft.; abd.

Lake Salvador—Plaquemines Parish

California Co.'s No. 1 Delta Minerals, Lse. 5, Sec. 2-15s-24e. 20-in. csg. 135 ft. 13⅜-in. csg. 1,935 ft.; T.D. 7,850 ft.; D.S.S.; fsg.

Leesville—La Fourche Parish

Texas Co.'s No. 73 Leeville, Sec. 27-21s-22e. T.D. 8,531 ft.; 5-in. csg. 8,531 ft. perf. csg. 8,482-8,527 ft.; I.P. 350 B. P.D.; ⅛-in. ck.

Lockport—Cameron Parish

Magnolia Pet. Co.'s No. 11 Farquhar, Sec. 8-10s-9w. Loc.

Neale—Beauregard Parish

Atlantic Ref. Co.'s No. 1 Musser-Davis Lbr. Co., Sec. 26-3s-11w. T.D. 8,430 ft.; run 5½-in. csg.; cd. bkn. sd. oil show 8,360-8,402 ft.
Atlantic Ref. Co.'s No. 1 Rice Ld. & Lbr. Co., Sec. 27-3s-11w. Drlg. 5,298 ft.

New Iberia—Iberia Parish

George Helis' No. 1-A Gulf fee, Sec. 71-12s-7e. Drlg. sh. 5,528 ft.
Wm. Helis' No. 1-A Sabatier, Sec. 53-12s-7e. R.U.
Midstates Oil Co.'s No. 1 Schwing, Sec. 56-12s-7e. Drk.
Texas Co.'s No. 7 Bryant, Sec. 25-12s-7e. T.D. 3,859 ft.; 7-in. csg. 3,842 ft.; perf. csg. 3,488-37 ft.; W.O.S.R.
Texas Co.'s No. 16 Duke, Sec. 26-12s-7e. T.D. 7,009 ft.; 7-in. csg. 6,972 ft.; perf. csg. 6,824-54 ft.; tstg.

North Crowley—Acadia Parish

Humble O. & R. Co.'s No. 2 Reiners, Sec. 45-8s-1e. 10¾-in. csg. 2,036 ft.
Humble O. & R. Co.'s No. 6 Stakes, Sec. 33-8s-1e. Drk.
Humble O. & R. Co.'s No. 3 Thevis, Sec. 34-8s-1e. 10¾-in. csg. 2,034 ft.; drlg. sh. 6,726 ft.

North Elton—Calcasieu Parish

Bel Oil Corp.'s No. 2 Bel Est., Sec. 22-6s-3w. Drlg. sh. 4,336 ft.

Paradis—St. Charles Parish

Texas Co.'s No. 5 L.L.&E. Paradis, Sec. 6-14s-20e. R.U.
Texas Co.'s No. 1 Sunset Realty & Planting Co., Sec. 38-14s-20e. 10¾-in. csg. 2,716 ft.; T.D. 11,192 ft.; 7-in. csg. 11,-190 ft.

Plumb Bob—St. Martin Parish

Texas Co.'s No. 14 St. Martin, Sec. 21-8s-7e. 18⅝-in. csg. 108 ft.; drlg. sh. 8,-037 ft.

Port Barre—St. Landry Parish

Gulf Ref. Co.'s No. 16 Wilson Cochran, Sec. 4-6s-5e. T.D. 6,599 ft.; P.B.; strkd.; drlg. sd.&L. 4,814 ft.
Sorrento Synd.'s No. 2 L. L. Barnard. 7-6s-6e. Loc.
Texas Co.'s No. 29 Botany Lbr. Co., Sec. 4-6s-5e. Drlg. sh. 6,210 ft.

Potash—Plaquemines Parish

Humble O. & R. Co.'s No. 45 Orleans Lv. Bd., Sec. 14-18s-15e. Loc.

Quarantine Bay—Plaquemines Parish

Gulf Ref. Co.'s No. 18 State, Twp. 19s-17e. Drlg. sdy. sh. 8,085 ft.
Gulf Ref. Co.'s No. 19 State, Twp. 19s-17e. Drlg. sh. 7,520 ft.

Raceland—La Fourche Parish

Amerada Pet. Corp.'s No. 6 South Coast Corp., Sec. 34-15s-19e. Drlg. sh. 1,240 ft.

Sorrento—Ascension Parish

Sorrento Synd.'s No. 2 L. L. Bernard, Sec. 22-10s-4e. Drlg. sh. 2,520 ft.

South Jennings—Jeff Davis Parish

Stanolind O. & G. Co.'s No. 1 E. K. Atwell, Sec. 14-10s-3w. T.D. 9,652 ft.; 5½-in. csg. 8,890 ft.; perf. csg. 8,812-42 ft.; S.I.; no ga.
Stanolind O. & G. Co.'s No. 1 Hebert. Sec. 21-10s-3w. T.D. 9,667 ft.; P.B. 5,-320 ft.; sdtrkd.; drlg. sd. 6,448 ft.

South Roanoke—Jeff Davis Parish

Continental Oil Co.'s No. 1 Krielow, Sec. 30-10s-3w. Loc.

Starks—Calcasieu Parish

W. T. Burton & McLean's No. 2 Industrial Lbr. Co., Sec. 29-9s-12w. Drlg. sd. &L. 6,630 ft.
W. T. Burton Oil Co.'s No. 1 Lutcher Moore Lbr. Co., Sec. 30-9s-12w. T.D. 4,810 ft.; 5½-in. csg. 3,990 ft.; abd.
Lutcher Moore Lbr. Co.'s No. 6 fee, Sec. 19-9s-12w. Loc.

Sweet Lake—Cameron Parish

Pure Oil Co.'s No. 18 Stanolind O. & G. Co., Sec. 12-13s-8w. 9⅝-in. csg. 1,435 ft.; drlg. sh. 2,067 ft.

Valentine—La Fourche Parish

Wm. Helis' No. 7 Valentine, Sec. 2-17s-20e. Drlg. sh. 2,630 ft.

Venice—Plaquemines Parish

Tide Water Asso. Oil Co.'s No. 8 Buras Lv. dist., Sec. 22-21s-30e. 10¾-in. csg. 2,475 ft.; drlg. sh. 3,870 ft.

Vermilion Bay—Iberia Parish

Texas Co.'s No. 4-B Vermilion Bay, Twp. 16-15e. 11¾-in. csg. 4,454 ft.; T. salt 5,855 ft.; 8⅝-in. csg. 7,546 ft.; drlg. sdy. sh. 8,139 ft.

Ville Platte—Evangeline Parish

Amerada Pet. Corp.'s No. 2 Roberie, Sec. 1-4s-2e. Drlg. sh.&sd. 9,030 ft.
Continental Oil Co.'s No. 4-A Corell, Sec. 36-3s-2e. T.D. 10,251 ft.; W.O.C.
Continental Oil Co.'s No. 3 Fontenot, Sec. 44-3s-2e. T.D. 8,988 ft.; I.P. 256 B.P.D.; ¼-in. ck.
Continental Oil Co.'s No. 8 Fontenot, Sec. 41-4s-2e. Drlg. sh. 6,986 ft.
Continental Oil Co.'s No. 5 Hass, Sec. 44-3s-2e. T.D. 10,299 ft.; I.P. 176 B.P. D.; 5/32-in. ck.

Continental Oil Co.'s No. 1 Ed Tate, Sec. 41-4s-2e. Drlg. sh. 6,020 ft.
Continental Oil Co.'s No. 2 A. Tate, Sec. 41-4s-2e. Drlg. sh. 8,486 ft.
Continental Oil Co.'s No. 4 Tate, Sec. 1-4s-2e. T.D. 10,308 ft.; 6-in. csg. on bttm. I.P. 224 B.P.D.; ¼-in. ck.
Continental Oil Co.'s No. 5 Tate, Sec. 1-4s-2e. Drlg. sh. 6,626 ft.
Continental Oil Co.'s No. 2 Vidrine, Sec 1-4s-2e. Perf. csg. 9,954-90 ft.; T.D. 10,256 ft.; I.P. 227 B.P.D.; ¼-in. ck.
Danciger O. & R. Co.'s No. 3 Vidrine, Sec. 1-4s-2e. T.D. 10,166 ft.; perf. csg. 10,066-10,100 ft.
J. K. Hughes' No. 1 Pitre, Sec. 1-4s-2e. Drlg. sh. 8,736 ft.

West Cote Blanche—St. Mary Parish

Texas Co.'s No. 2 State, West Cote Blanche, Twp. 16s-6e. T.D. 9,491 ft.; S.D.; W.O.C.

West Gueydan—Vermilion Parish

Magnolia Pet. Co.'s No. 2 Reese, Sec. 5-12s-2w. R.U.

West Lake Verret—St. Mary Parish

Shell Oil Co., Inc.'s No. 5 Jeanerette, Sec. 14-14s-12e. Loc.

White Castle—Iberville Parish

Shell Oil Co., Inc.'s No. 2 Forest Home. T.D. 6,481 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co.'s No. 6 Calcasieu Natl. Bk., Sec. 7-9s-5w. Loc.
Union Sulphur Co.'s No. 3 Johnson, Sec 12-9s-6w. Perf. csg. 8,108-13 ft.; I.P. 250 B.P.D.; 11/64-in. ck.
Union Sulphur Co.'s No. 1 T. Miller Sec 6-9s-5w. T.D. 9,750 ft.; 5½-in. csg. 9,689 ft.; perf. csg. 9,592-95 ft.; swbd. S.W.

S. LOUISIANA WILDCATS

Beauregard Parish

Danciger O. & R. Co.'s No. 1 G. E. LeRoy, Sec. 2-3s-9e. 10¾-in. csg. 2,048 ft.; T.D. 8,641 ft.

Calcasieu Parish

G. E. Burford et al's No. 1 La. Farm & Livestock Co., Sec. 7-11s-9w. R.U.
W. T. Burton et al's No. 1 Mayo Realty Co., Sec. 8-11s-8w. Drlg. sh. 7,063 ft.
Hamman Expl. Co.'s No. 1 Sabine Rice Ld., Inc., Sec. 3-11s-11w. R.U.
M. H. Hennah's No. 1 J. S. Reed, Sec. 18-10s-12w. Drlg. sd.&sh. 2,785 ft.

Cameron Parish

Phillips Pet. Co.'s No. 1 Miami Corp., Sec. 11-4s-6w. Well tried to blow out; stk. D.S.; sdtrkd. 3,775 ft.; 9⅝-in. csg 9,583 ft.; T.D. 10,655 ft.; set 1,221 ft. of 5½-in. csg. 10,249 ft.; W.O.C.
Superior Oil Co.'s No. 3 State, Sec. 1-14s-9w. T.D. 9,534 ft.; run csg.

Iberville Parish

Falcon-Seaboard's No. 1 Folse, Sec. 11s-13e. 13⅜-in. csg. 2,335 ft.; drlg. sh. 9,844 ft.

Jeff Davis Parish

H. M. Naylor's No. 1 Acadia Dev. Co., Sec. 12-10s-2w. 10¾-in. csg. 2,115 ft.; 9⅝-in. csg. 9,006 ft.; T.D. 10,000 ft.; 7-in. csg. 10,000 ft.; perf. csg. 9,700-11 ft.; flwd. 5 bbl. 43-gr. dist. and 2 bbl. S.W. per hr.; ⅛-in. ck.; killed well; sqzd. perf.; S.D.W.O.
Union Sulphur Co.'s No. 1-A Calcasieu Natl. Bnk., Sec. 2-8s-4w. Drlg. sh. 1,803 ft.

Jefferson Parish

Shell Oil Co., Inc.'s No. 1 State, Sec. 27 20s-24e. Drlg. sh. 2,490 ft.

Plaquemines Parish

Gulf Oil Corp.'s No. 1-E Buras Lv. dist Sec. 1-23s-10e. 9⅝-in. csg. 9,269 ft.; drlg. sh. 9,640 ft.
California Co.'s No. 1 Delta Minerals Sec. 2-15s-24e, 13⅜-in. csg. 2,028 ft. 7-in. csg. 10,188 ft.; drlg. sdy sh. 10,543 ft.

St. Mary Parish

E. G. Bateman et al's No. 1 W. P. Foster, Sec. 38-15s-9e. Drlg.
E. G. Bateman et al's No. 1 W. P. Foster, Sec. 38-15s-9e. R.U.
H. J. DeArman et al's No. 1 A. P. Eres, Sec. 68-13s-8e. R.U.
Sun Oil Co.'s No. 1 Belle Isle, Sec. 6 18s-11e. Drlg. sh. 8,023 ft.

Terrebonne Parish

Stanolind O. & G. Co.'s No. 1 State (Bay Junop), Sec. 35-21s-14e, 20-in. csg. 95 ft.; drlg. sh. 7,141 ft.

Vermilion Parish

Union Oil Co. of Calif.'s No. 1 Walter White hrs., Sec. 17-15s-1e. 13⅜-in. csg. 2,800 ft.; sdtrkd.; 7-in. csg. 10,267 ft.; T.D. 11,082 ft.; cmtd. 602 ft. of 5½-in. csg. 10,670 ft.; prepare to test sd. 10,520-40 ft.

TEXAS

Week Ended July 6

GULF COAST FIELDS

Anchor—Brazoria County

Humble O. & R. Co.'s No. 2 Mettler Dpnd. to T.D. 10,605 ft.; set 117 ft. 5-in. liner at 10,605 ft.
Sun Oil Co.'s No. 1 Morris Stern, Shubai Marsh Sur. 18⅝-in. csg. 128 ft.; T.D. 10,751 ft.; 7-in. csg. on bttm.; perf. csg. 10,570-74 ft.; flwd. 390 bbl. oil and S.W. P.D., ¼-in. ck.

Old Ocean—Brazoria County

Fidelity O. & R. Co.'s No. 1 Chenault, C. Breen Sur. Drlg. sd.&sh. 9,239 ft.
Harrison & Abercrombie's No. 8 Bernard, C. Breen Sur. Drlg. sh.&L. 10,178 ft.
Harrison & Abercrombie's No. 1 Dailey, C. Breen Sur. Drlg. sh.&sd. 9,212 ft.
Harrison & Abercrombie's No. 1 Mueller et al, M. M. Nuckols Sur. Cg. sd.&sh. 10,530 ft.
Harrison & Abercrombie's No. 1 A. F. Wilson, D. McCormick Sur.; drlg. sh. 9,576 ft.
Stanolind O. & G. Co.'s No. 1 Schelle-Donovan, L. Koep Sur. Drlg. sh. 6,478 ft.
Sun Oil Co.'s No. 4 Borsodi, C. Breen Sur. 13⅜-in. csg. 1,520 ft.; 9⅝-in. csg. 7,009 ft.; T.D. 11,085 ft.; perf. csg. 9,788-9,800 ft.; swbg.; abd.

League City—Galveston County

Phillips Pet. Co.'s No. 1 Herrick & Martin, S. F. Austin Sur. Drlg. sh. 3,536 ft.

Alta Loma—Galveston County

Stanolind O. & G. Co.'s No. 2 J. A. Hulen, A. Brigham Sur. Drlg. sh. 5,085 ft.
Stanolind O. & G. Co.'s No. 3 J. A. Hulen, A. Brigham Sur. 13⅜-in. csg. 2,440 ft.; drlg. sh.&L. 4,420 ft.

Clear Lake—Harris County

Humble O. & R. Co.'s No. 48-C Humble-West, G. B. McKinstry Sur. T.D. 6,220 ft.; P.B. 3,895 ft.; W.O.C.

Lolita—Jackson County

Magnolia Pet. Co.'s' No. 1 Four Way ranch, I.&G.N. Sur., Blk. 1, Sec. 11. T.D. 5,925 ft.; 5½-in. csg. 5,925 ft.
Magnolia Pet. Co.'s No. 1 O. G. Hinshaw, S. F. Austin Sur. 5. Drlg. sh. 5,420 ft.
Magnolia Pet. Co.'s No. 1 Mitchell, S. F. Austin Sur. 5. T.D. 5,933 ft.; 5½-in. csg. on bttm.

Fannett—Jefferson County

Gulf Oil Corp.'s No. 5 Bordages, J. Probarth Sur. T.D. 8,257 ft.; 5½-in. csg. 8,245 ft.; I.P. 849 B.P.D., ¼-in. ck.
Gulf Oil Corp.'s No. 6 Bordages, J. Probarth Sur. Drlg. 937 ft.

South China—Jefferson County

Pan American Prod. Co.'s No. 1 Neal, T.D. 7,975 ft., 7-in. csg. on bttm.

Esperson—Liberty County

General Crude Oil Co.'s No. 21 Davis, D. Kokernot Sur. T.D. 2,842 ft.; I.P. 162 bbl. fluid, 78 per cent oil and 22 per cent S.W., ¼-in. ck.

Hull—Liberty County

Gulf Oil Corp.'s No. 1 Phoenix Dev. Co., J. Devore Sur. Loc.

Ace—Polk County

Shell Oil Co., Inc.'s No. 2 Kirby West Lbr. Co., P. A. Sublett Sur. Perf. csg. 8,774-82 ft. Pulling tbg.

Segno—Polk County

Jordan Drlg. Co.'s No. 3 Hughes, I.&G. N. Sur. 10¾-in. csg. 2,150 ft.; drlg. sh. 6,730 ft.
Gulf Oil Corp.'s No. 36 Wing, I.&G.N. Sur. Drlg. sh. 2,160 ft.
Gulf Oil Corp.'s No. 38 Wing, I.&G.N. Sur. 14. Loc.
Humble O. & R. Co.'s No. 25-BX Kirby Lbr. Corp., M. Victor Sur. S.D. 2,933 ft.

Joe's Lake—Tyler County

Republic Prod. Co.'s No. 38 fee, N. Hurd Lge. Drlg. sh. 7,212 ft.

Hilje—Wharton County

Texas Co.'s No. 1 A. R. Benner et al, E.T.R.R. Sur., Sec. 101. T.D. 5,233 ft.; 5½-in. csg. 5,212 ft. I.P. 83 B.P.D., ⅛-in. ck.

GULF COAST WILDCATS

Brazoria County

Glenn McCarthy's No. 1 W. B. Munson, Samuel Carter Sur. T.D. 11,860; 5½-in. csg. 11,840 ft.
Rowan & Nichols Oil Co.'s No. 1 Hubbard, Wm. Harris Sur. 10-min. D.S.T. 9,107-34 ft.; rec. 128 ft. mud and dist.; T.D. 10,008 ft.; 7-in. csg. 9,680 ft.; perf. csg. 8,538-54 ft.; I.P. 187 bbl. 40.5-grav. oil P.D., ⅛-in. ck.

Chambers County

Humble O. & R. Co.'s No. 1 State, Sec. 247, Galveston Bay, 7-in. csg. 9,224 ft.; T.D. 9,448 ft.; P.B. to test.
Sun Oil Co.'s No. 1 Clara C. Smith, T.& N.O. Sur. 82. T.D. 8,865 ft.; perf. csg. 8,849-53 ft.; flowed 164 bbl. oil and 18 bbl. S.W. 12 hrs., ¼ and ⅛-in. cks.

Colorado County

Shell Oil Co., Inc.'s No. 1 R. H. Goodrich, H. Heller Sur. Cg. sd. 8,064 ft.

Fort Bend County

Sam F. Bashara et al's No. 2 Alcorn Ld. & Imp. Co., Wm. Stafford Sur. 9⅝-in. csg. 987 ft.
Superior Oil Corp.'s No. 2 A. P. George, A. B. Keller Sur. 10¾-in. csg. 1,816 ft. T.D. 9,574 ft.; abd.

Hardin County

Jack Frazier et al's No. 1 Nona Mills, S. B. Turner Sur. Drlg. sh. 4,036 ft.

Harris County

J. W. Frazier et al's No. 1 Mrs. Theone Killerman Johnson et al, Whitney Britton Sur. Drk.
Joyce Richardson's No. 1 Marks, J. C. Ogburn Sur. T.D. 7,248 ft.; 5½-in. csg. 7,128 ft.; perf. csg. 6,918-26 ft.; flwd. 35 bbl. dist. P.D., ¼-in. and 9/64-in. cks.; T.P. 600 lb., C.P. 2,500 lb.

Jackson County

Barnsdall Oil Co.'s No. 1 Pritchett, A. M. Clare Sur. Loc.
W. S. Boyle's No. 1 Beenview Dev. Co., V. Garcia Sur., Blk. 25. T.D. 6,002 ft.; cutting red wall cores.
John Mayo and Kirkpatrick Drlg. Co.'s No. 1 J. H. Tucker, R. Musquez Sur. 10¾-in. csg. 505 ft.; drlg. sh. 6,090 ft.

Matagorda County

Texas Co.'s No. 1 A. B. Pierce, H.&G. N. Sur., Sec. 1, Blk. 65. T.D. 8,971 ft.; perf. csg. 8,290-8,300 ft.; perf. csg. 8,265-90 ft.; I.P. 143 bbl. dist. 23 hrs., 16/64-in. ck.; T.P. 2,900 lb.
Texas Co.'s No. 2 R. V. Taylor, F. George Sur. Drlg. sh. 9,310 ft.

San Jacinto County

Jack Frazier's No. 1 Coldine, J. Rankin Sur. Rec. 9 B.O. and 9 bbl. S.W.; D.S.T. 7,815-7,790 ft.; T.D. 10,002 ft.; P.B. 7,821 ft.; perf. csg. 7,805-10 ft.; rec. S.W.; abd.

Walker County

E. J. Dupree's No. 2 Thompson, M. Milsap Sur. T.D. 3,207 ft.; 5½-in. csg. 2,900 ft.

Wharton County

Eura B. Oil Co.'s No. 1 Maerz, John T. Rives Sur., Sec. 64. T.D. 7,504 ft.; abd.

S. W. TEXAS WILDCATS

Aransas County

Continental Oil Co.'s No. 2 St. Charles Co., R. D. Blassman Sur.; (relief well to blow out); T.D. 8,406 ft.; perf. csg 7,636-45 ft., flwd. gas and dist.; killed to retest.

Bastrop County

August Bering's No. 1 Rivers, B. Osborne Sur. Drlg. L. 2,233 ft.
Marts & Bearen's No. 1 Edmondson, M. Barker Sur. Drlg. sh. 90 ft.
Ogden & Riddle's No. 2-B Riddle, J. B. Blalock Sur. S.D. 1,828 ft.

Bee County

M. D. Dirks' No. 1 J. W. Wolf, T. B. Barton Sur. Loc.

Bexar County

H. L. Bedwell's No. 1 Russell F. Rodriguez Sur. S.D. 350 ft.

Brooks County

Sun Oil Co.'s No. 1-A Charles Boedecker, Sec. 16, C.C.S.D.&R.G.N.G. Sur. Drlg. sh. 1,630 ft.
West Prod. Co.'s No. 1 J. D. Cage, G.C.& S.F. Sur. 31. Drlg. sh. 4,710 ft.

Burleson County

H. Y. Barnett's No. 1 Fick, J. S. Cox Sur. S.D. 2,090 ft.

Calhoun County

Coronado Corp.'s No. 1 K. Welder, Hidalgo Sur., 3 mi. SE Seadrift. "Tight well"; reported to be tstg.; 5½-in. csg 9,750 ft.; perf. csg. 8,473-84 ft.; swbd. S.W.; perf. csg. 5,654-56 ft.; flwd. gas, spray dist.; killed to retest.

Duval County

Bridwell Oil Co.'s No. 1-A Rogers, J. Poitevent Sur., Sec. 21, Rec. 210 ft. oil; 10-min. D.S.T. 4,321-27 ft.; T.D. 4,327 ft.; 5½-in. csg. 4,321 ft.; perf. csg. 4,323-35 ft.; I.P. 122 bbl. 43.5-gr. oil P.D., ¼-in. ck.; C.P. 1,500 lb.
Diamond-Half Oil Corp.'s No. 1 Cantu, Ponciano Alanis Sur. T.D. 3,027 ft.; W.O.
Forest Dev. Corp.'s No. 1 Rogers, J. Poitevent Sur. 275. T.D. 4,307 ft.; 5½-in. csg. 4,307 ft.
Norsworthy Prod. Co.'s No. 1 DeLopez, Y. Benavides Sur., Sec. 57. Drlg. 140 ft.
Providence Oil Corp.'s No. 1 C. Driscoll, I.&G.N. Sur., Sec. 138. Cg. 3,366 ft.

Gillespie County

E. L. Nixon's No. 1 Mayford, Pedro Cobrera Sur. 29. Drlg. L. 311 ft.

Goliad County

J. K. Culton's No. 1 S. E. Cole, Goliad Town Tr. Drlg. sh. 2,236 ft.

Guadalupe County

Lavernra Lbr. Co.'s No. 1 Boeck, J. Christopher Sur. 134. S.D. 800 ft.

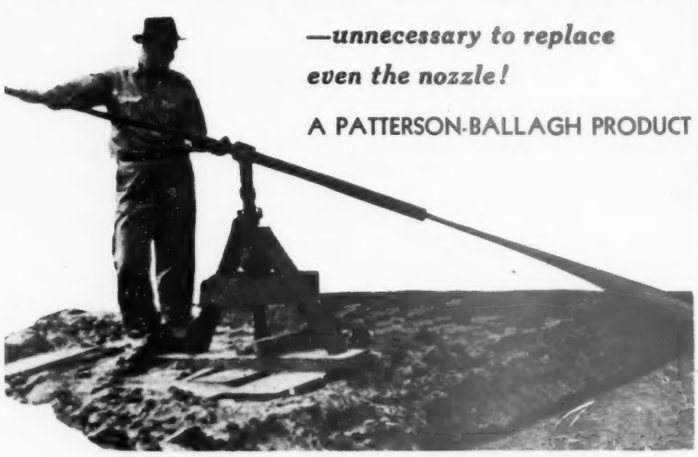
Jim Hogg County

Patel Drillers, Inc., et al's No. 1 Gutierez, E. C. Barton Sur. 579. Drlg. sd. 2,500 ft.

Jim Wells County

Henshaw Bros.' No. 1 L. L. Allen, Casa

P-B MUD GUN OPERATED 2520 HOURS



—unnecessary to replace even the nozzle!

A PATTERSON-BALLAGH PRODUCT

One Operator reports: "We ran the Patterson-Ballagh Universal Mud Gun for 6 weeks, 24 hours per day, under 500-lb. pressure, and ran a total of 2,520 hours. It is still in good running order and it is unnecessary to even replace the nozzle."

See Composite Catalog

PATTERSON-BALLAGH MUD GUN

PATTERSON-BALLAGH CORPORATION . . . LOS ANGELES • HOUSTON • NEW YORK CITY

Blanca Sur. 10¾-in. csg. 648 ft.; T.D. 5,232 ft.; W.O.

Hewitt & Daugherty's No. 1 Carver, I.& G.N.R.R. Sur. T.D. 5,286 ft.; perf. csg. 5,278-86 ft.; flwg. gas.

Kimble County

Austin Bridge Co.'s No. 1-A Wilkinson, Brooks & Burleson Sur. Drlg. L. 495 ft.

Kleberg County

Skelly Oil Co.'s No. 1 State, Laguna de Los Olmos gr., Tr. 385. 7⅝-in. csg. 7 669 ft.; T.D. 9,429 ft.; perf. csg. 7,394-98 ft.; rec. S.W.; show of oil.

La Salle County

H. R. Cullen's No. 1 A. L. Washburn, H. &G.N. Sur. 67. Rec. 150 ft. gas-cut mud; S.O.; D.S.T. 4,740-4,805 ft.; S.D. 7,400 ft., sd.

H. R. Cullen's No. 1 Wildenthal, J. McMullen & J. McGloin Sur., Lot Blk. 69. Drk.

Lee County

Fred Pederson et al's No. 1 Brown, Davis Hudson Sur. T. Glen Rose L. 6,600' 5½-in. lnr. cmtd. 8,201 ft.; cg. L. 8,470 ft.

McMullen County

H. F. Baker's No. 1 Gallowav. G R Galloway Sur. 34. Drlg. sh. 1,440 ft.

Cities Service Oil Co.'s No. 2 Rhode, L. W. Snowden Sur. 20. Drlg. 1,210 ft.

McCormick-King Prod. Co.'s No. 1 Shiner, Jose Alderete Sur. 14. Drlg. 950 ft.

Van Dresar's No. 3 Brown, R. H. Brown Sur. 54. S.D. 50 ft.

Nueces County

Humble O. & R. Co.'s No. 1 State, Nueces Bay, Tr. 723, 10¾-in. csg. 1,712 ft.; cd gas sd. 3,978-4,022 ft.; T.D. 5,200 ft.; perf. csg. 3,940-90 ft.; I.P. 380,000 cu. ft. gas P.D., ¼-in. ck; T.P. 135 lb.

Humble O. & R. Co.'s No. 1-B State, Tr. 706. 16-in. csg. 134 ft.

Pure Oil Co.'s No. 1 S. Little, S. Ward Sur. 194. 13⅜-in. csg. 179 ft.; T.D. 8,957 ft.; abd.

Richardson Pet. Co.'s No. 1 Boy Scouts of America, M. L. De Herrera gr. (Robstown field). Drlg. sh. 6,435 ft.

S. E. W. Oil Co.'s No. 1 Fred Talley, Sec. 10, Paul subd., Driscoll ranch. Drlg. sdy. sh. 3,420 ft.

Fred W. Shield's No. 1 J. O. Moore, De Lores I.&A. Sur., Sec. 143. 10¾-in. csg. 766 ft.; drlg. sh. 4,086 ft.

Stanolind O. & G. Co.'s No. 1 State, C. M. Blucher Sur., Tr. 746, 1¼ mi. S of E. White Point field. Driving piling.

Texas Conservative Oil Co.'s No. 1 Isaacsee, Gregorio Farias Sur. Drlg. sh. 6,129 ft.

San Patricio County

W. S. Boyle and R. Wimberly's No. 1 R. L. Hodges. Cg. 4,980 ft.

Starr County

Sun Oil Co.'s No. 1 Claude King, C.C.S. D.&R.G.N.G.R.R. Sur. 511. T.D. 5,086 ft.; abd.

Travis County

Ralph Janner's No. 1 Larremore, Santiago del Valle Sur. R.U.

Val Verde County

Joiner Oil Co. et al's No. 1 Clyde Sellers. T.D. 2,002 ft.; S.D.

Victoria County

Coastal Drlg. Co.'s No. 1 Goldman, V. Garcia Lge. T.D. 6,019 ft.; abd.

Colton & Colton's No. 1 Terrell, J. B. Sideck Sur. T.D. 5,285 ft.; 7-in. csg. 5,284 ft.; T.D. 5,610 ft.; 5-in. lnr. on bttm.; perf. csg. 5,289-92 ft.; swbd. S.W.

W. L. Goldston's No. 1 Keeran, M. de Leon Sur. R.U.

Humble O. & R. Co.'s No. 1 E. N. Nave, M. J. Treaviesa gr. S.D. 5,303 ft., high wtr.

Pacific Irwin O. & G. Co.'s No. 1-B Keeran, M. de Leon Sur. T.D. 7,503 ft.; abd.

Webb County

Cecil Hagen's No. 1 T. S. Masterson, Sec. 7, Blk. 2. Drlg. 1,812 ft.

O. W. Killam's No. 2 Puig, A. de Arriba Sur. 10¾-in. csg. 100 ft.

Smith & Storey and Texas Gulf Prod. Co.'s No. 1 J. O. Walker, Sec. 276. Cg. 1,006 ft.

Tide Water Asso. Oil Co.'s No. 8 Bruni, M. Arispe gr.: (deep test, Bruni field). 10-in. csg. 4,480 ft.; drlg. sh. 4,830 ft.

Williamson County

C. C. Lanier's No. 1 Guental, Harry Cooke Sur. S.D. 2,450 ft.

Wilson County

W. D. Moore et al's No. 1 Lorenz, Morris May Sur. S.D. 450 ft.

E. E. Young's No. 1-A McMeans, C. W. Parrott Sur. Drlg. 1,430 ft.

Zapata County

Buffalo Oil Co.'s No. 1 A. Martinez, T.T. R.R. Sur. 257. R.U.

Hawkeye Pet. Co.'s No. 1 Uribe, J. V. Borrego Sur. T.D. 3,212 ft.; abd.

J. P. Martin's No. 2 Vela, El Grullo Sur. Loc.

Zavala County

H. F. Wilcox O. & G. Co.'s No. 6 Gilliam, Pedro Mesa Sur. 12. T.D. 3,997 ft.; abd.

WEST TEXAS WILDCATS

Andrews County

Atlantic Refg. Co.'s No. 1-2 University, Sec. 2, Blk. 11, Univ. Lds. Sur. Swbg. 1 B.O.P.H. after shot at 4,500 ft.

Atlantic Refg. Co.'s No. 1-23 University, Sec. 23, Blk. 11, Univ. Lds. Sur. C.O. after shot at 4,470 ft.

Helmerich & Payne, Inc.'s No. 1 University, Sec. 11, Blk. 11, University Sur.; 5,500-ft. test. Flwg. 10 B.O.P.H.; T.D. 4,475 ft.; has been acd. with 14,000 gal. and shot with 500 qt.; R.U. to pmp.

Texas Pacific Coal & Oil Co.'s No. 1-A Midland farms, NE NW Sec. 1, Blk. 40, Twp. 1n, T.&P. Survey, 5,000-ft. test. M.I.M.

Brewster County

J. W. Quinn, Tr.'s No. 1 S. L. Strumburg, NW cor. SE Sec. 70, Blk. G, M.K. &T.E. Sur.; 2,500-ft. test. S.R. hole 740 ft.

Cochran County

Texas Co.'s No. 1-F Mallett Land & Cattle Co., SW cor. Labor 25, Lge. 51, Scurry C.S.L. Sur. Drlg. 5,055 ft.

Concho County

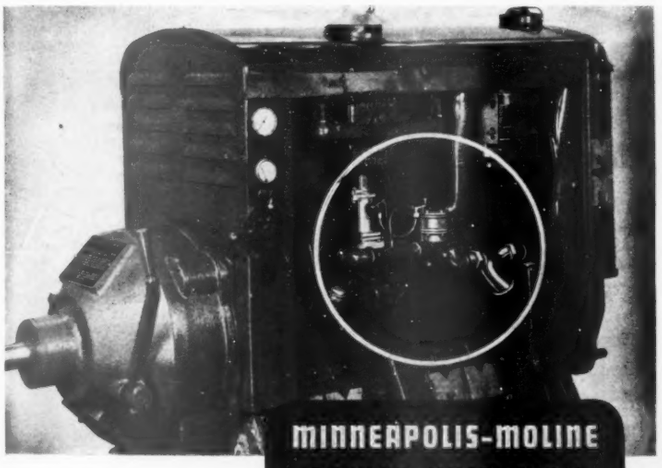
Floyd Dodson's No. 1 Wilson, Thomas Green Sur. 1 3,500-ft. test. Drld. sat. 3,753-56 ft.; S.D. 3,756 ft.

Crane County

Gulf Oil Corp.'s No. 5 M. B. McKnight, Sec. 1, Blk. 21-B, P.S.L. Sur. M.I.R. 6,766 ft.

Gulf Oil Corp.'s No. 1-F University, SE SE Sec. 22, Blk. 31, Univ. Sur. Drlg. 2,475 ft.

Gulf Oil Corp.'s No. 31 Waddell, Sec. 5



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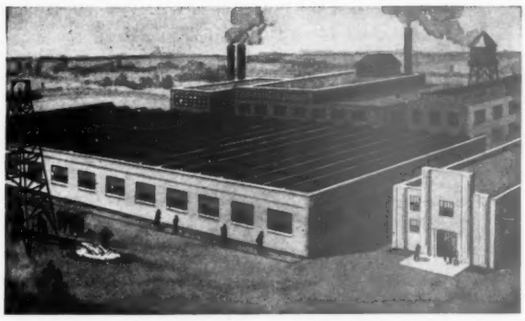

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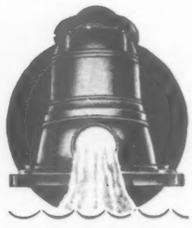

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Blk. 24-B, P.S.L. Sur. T.D. 4,047 ft., wtr.; P.B. to 3,400 ft.; swbd. 74 B.O. in 24 hrs.; P.B. 3,424 ft.; C.O.; swbg. 16 B.O.P.D.

Moore Bros. Expltn. Co.'s No. 2 Barnsley, NE NE Sec. 42, Blk. 32, P.S.L. Sur., 3 mi. SE of Gulf Oil Corp.'s discovery well No. 1-A Tubb. Loc.

Crockett County

Gregory & McCandless' No. 1 Shannon estate, 1,787 ft. from S and 3,107 ft. from E lines of Lge. 3, Archer C.S.L. Sur. Fsg. 935 ft.

Lewis & Shannon's No. 1 Noelke, SW cor. NE Sec. 30, Blk. GG, H.E.W.T. Sur. Top Yates sand 900 ft.; made 35 B.O.P.D.; tstg. 1,100 ft.

M. & M. Drlg. Co.'s No. 1 G. Bouscaren, SE cor. NW Sec. 29, Blk. G.G., H.E.& W.T. Sur., 1 mi. N of Soma discovery well. Below 1,600 ft.; tight well.

Moore Expltn. Co.'s No. 1 A. C. Hoover, Sec. 16, Blk. 1, G.C.&S.F. Sur. W.O.C. 2,100 ft.; S.S.O. 1,920-2,100 ft.; installing pumping unit; swbd. 21 B.O. in 6 hrs.; tstg. on pmp. at 2,150 ft.; 3½ B.P.H.

Culberson County

Cothran et al's No. 1 Casey-Rounsaville, C SW¼ Sec. 7, Blk. 104, P.S.L. Sur. S.D.R. 100 ft.

Dawson County

Ray Albaugh's No. 2 Robinson, NW NW Sec. 54, Blk. M, E.L.R.R. Sur. S.D.O. 5,214 ft.; S.S.O. 5,206-14 ft.; S.D.O. 5,-214 ft.

Gaines County

Richmond Drlg. Co. et al's No. 1 G. R. Brumley, NE NE Sec. 17, Blk. 12-A. P.S.L. Sur. T.D. 4,664 ft.; S.S.O.; W.O. C.; 5½-in. csg. 4,384 ft.

Howard County

R. M. Huff's No. 1 E. W. Douthitt, 330 ft. from W and 2,310 ft. from S lines of Sec. 116, Blk. 29, W.&N.W. Sur. Drlg. 500 ft.

C. T. McLaughlin's No. 1 Pete Johnson, NE NE Sec. 34, Blk. 32, Twp. 1n, T. &P. Sur. Drlg. 2,838 ft.

M. L. Richards' No. 1 Thelma J. Cole, SE NW Sec. 12, Blk. 26, H.&T.C. Sur. 3,500-ft. test. S.D.R. 1,210 ft.

Hudspeth County

Haymon Krupp Oil & Ld. Co.'s No. 1 Briggs, Sec. 24, Blk. 73, Twp. 7, T.& P. Sur. T.D. 6,175 ft.; 5½-in. csg. set at 6,166 ft.; drlg. 6,185 ft.

Mitchell County

Dockery & Robbins' No. 1 C. G. Crawford, SW SW Sec. 13, C. A. O'Keefe subd. S.D.R. 920 ft.

Ewing & Hanes' No. 1 G. I. Grable, Sec. 196, Blk. 3, H.&G.N. Sur., 1,900-ft. test. Setting 7-in. at 1,498 ft.; 500 ft. O.I.H.

N. V. Hilburn's No. 1 E. T. Strain, Sec. 82, Blk. 97, H.&T.C. Sur. S.D.O. 1,790 ft.; drld. sat. 1,706-32 ft. and 1,736-39 ft.; est. 4 B.O.P.D. naturally; shot 300 qt. 1,700-1,800 ft.; bailing 5 B.O. per hour; 1,800 ft., T.D.; P.O.P.; 5 B.O.P.H.

Pecos County

Plymouth Oil Co.'s No. 1 Richard Levy, SW cor. Sec. 104, Blk. 8, H.&G.N. Sur. Drlg. 4,937 ft.

H. H. Sides' No. 1 Blackstone-Slaughter, Sec. 29, Blk. 129, T.&St.L. Sur., 1,050 ft. W, 250 ft. S lines of section. Drlg. 1,241 ft.

Presidio County

H. D. Wilcox's No. 1 C. E. Conring, 500 ft. from the N and 2,080 ft. from the E lines of Sec. 102, Blk. 4, G.H.&S.A. Sur. Drlg. 415 ft.

Reagan County

R. E. Ringo's No. 1 fee, 1,320 ft. from N and W lines of Sec. 22, Blk. K, 3,500-ft. test. Drlg. 860 ft.

Reeves County

Roy Johnson's No. 1 H. L. Perkins. S.D. R. 1,009 ft.

Scurry County

Coffield & Guthrie, Inc.'s No. 1 J. W. Moar, Sec. 334, Blk. 97, H.&G.N. Sur., NW Sec. 4,500-ft. test. Drlg. 4,197 ft.

Ordovician Oil Co.'s No. 1 O. L. Burney, NW NW Sec. 146, Blk. 97, H.&T.C. Sur. Flwd. 145 B.O. in 6 hrs.; T.D. 2,461 ft.; pmpd. 246 B.P.D.

Stonewall County

Shell Oil Co., Inc.'s No. 1 J. D. Patterson, SW NW Sec. 393, Blk. D, H.& T.C. Sur.; Ordovician test. Fsg. D.P. 1,955 ft.

Shell Oil Co., Inc.'s No. 1 Smith, Sec. 143, Blk. 1, H.&T.C. Sur. Top Mississippian at 6,007 ft., top saturation at 6,015 ft. and drilled to T.D. 6,028 ft. in saturation; flwd. 280 bbl. oil in 24 hrs.; T.D. 6,085 ft.; last report; at 6,050 ft.; well flwd. 68 B.O.P.D.; fsg. tools 6,060 ft.

Sutton County

W. M. Lyles and L. H. Dunn's No. 1 C. D. Wyatt, NE NE Sec. 4, Blk. 6, T.W. &N.G. Sur.; Ordovician test. Loc.

Upton County

B. C. & D. Dev. Co.'s No. 1 Richard Owens, NE NW Sec. 91, Blk. Y, G.C. &S.F. Sur. Drlg. 985 ft.

Ward County

Gulf Oil Corp.'s No. 5 Wristen, Sec. 13, Blk. 5, H.&T.C. Sur.; scheduled Ordovician test. Cg. 8,383 ft.

Sinclair Prairie Oil Co.'s No. 1 Wirt Davis, 330 ft. NW, 2,310 ft. SW lines Sec. 32, Blk. 4, H.&T.C. Sur.; 3,500-ft. test. Loc.

Winkler County

Gulf Oil Corp.'s No. 136 O'Brien, SE SW Sec. 11, Blk. F, G.M.M.B.&A. Sur. Drlg. 3,130 ft.

Yoakum County

Amerada Pet. Corp.'s No. 1 A. M. Brownfield, NE SW Sec. 620, Blk. D, Gibson Sur.; 5,500-ft. test. Cg. 5,651 ft.

E. C. TEXAS WILDCATS

Angelina County

Summerall-Harris' No. 2 G. E. Condra, D. W. Maroney Sur., ½ mi. W of Huntington. S.D.O. 1,486 ft.

Freestone County

L. F. Grey's No. 1 O. B. Utley, S. J. Claypool Sur., 4 mi. N of Fairfield. Loc.

Henderson County

Bill LaRue's No. 1 Cora Rogers, A. De La Garza Sur., 3 mi. NE of Stockard. Loc.

Kaufman County

W. H. McGee's No. 1 Rutland Savings Bnk., John Baker Sur., 2¼ mi. NE of Tulosa. T.D. 3,120 ft.; prep. cmt. csg. 3,120 ft.

T. G. Shaw, Tr.'s No. 1 Angus Wynne, B. S. Newman Sur., 8 mi. E. Kaufman, lower Trinity test. T. anhy. 5,934 ft.; T. Massive 6,123 ft.; B. Massive 6,255 ft.; conditioning hole 6,454 ft.

Red River County

Joe White's No. 1 Kurth Lbr. Co., E. Smith Sur., near Allen Mill. S.D. 40 ft.

Rusk County

J. S. Harrold's No. 1 M. J. Armstrong, M. D. Carmel Sur., 3 mi. SE Henderson. Drlg. 2,450 ft.

EAST TEXAS

(Border Counties)

Bowie County

W. E. Neill's No. 1 L. Fort, 600 ft. NL, 150 ft. EL, 103-ac. tr., L. Peters Sur. T.D. 2,050 ft.; wsg. to bttm.; prep. to drill ahd.

Shell Oil Co., Inc.'s No. 1 W. D. Hall, 6,-900 ft. EL and 4,000 ft. SL of J. Downey Sur.; 6,000-ft. tst. Drlg. 3,867 ft.; Paluxy showed S.W.

Harrison County

Ark. La. Gas Co.'s No. 1-C Abney, Jas. Shandoin Sur. Drlg. 5,936 ft.

Marion County—Other

L. E. Baker & Bryan's No. 1 A. L. Hartzo, 1,460 ft. N, 315 ft. W, SE cor. G. Coore Sur. T.D. 2,330 ft.; W.O.S.R.

J. D. Baker's No. 2 Decker, 500 ft. S, 300 ft. W, NE cor. J. G. Reeves Sur. T.D., sh. 2,416 ft.; U.R.; set 5½-in. csg. 2,210 ft.; oil sd. 2,370-2,400 ft.

M. D. Fitzwater's No. 1 C. Moseley, 3,800 ft. SL, 3,700 ft. WL, Wm. H. Burton Sur. 8-in. csg. 2,244 ft.; T.D. 2,316 ft.; blg. est. 10 B.P.D.; W.O.S.R.

Henry & Parson's No. 1 W. C. Ralph, Ell Usury Sur., 3 mi. N of Jefferson. Set 9⅝-in. csg. 1,012 ft.; drlg. sh.&L. 4,350 ft.

J. M. Horne's No. 1 W. F. Singleton, 1,-331 ft. EL, 50 ft. NL, J. O. Jackson Sur. Set 5½-in. csg. 2,267 ft.; S.D. 2,-512 ft.

H. T. Manning's No. 1 T. O. Livingston, G. Coore Sur. Drlg. sh. 2,216 ft.

E. D. Markham's No. 2 S. Hart, 300 ft. SE cor. 27.8-ac. tr., G. Coore Sur. Drlg. 157 ft.

J. D. Reynolds' No. 6-B Terry est., 175 ft. NL, L. Whatley tr., 1,000 ft. EL W. Coore Sur. Set 5½-in. csg. 2,312 ft.; T.D. 2,336 ft.

Sanders & Wycliffe's No. 1 Sid Hart, 960 ft. N, 60 ft. E, SW cor. G. Coore Sur. Set 5½-in. csg. 2,300 ft.; drlg. 2,376 ft.

Texas Canadian Oil Co.'s No. 1 B. Mackey, 282 ft. NL, 218 ft. WL, 35-ac. tr., Lewis Needham Sur. S.D. 2,290 ft.

Sabine County

Sterm & Womack's No. 1 I. K. Kieth Southwestern Lands, 400 ft. SL, 500 ft. EL, 53-ac. tr., L. Grace Sur. Cg. sh. &sd. 2,623 ft.

Shelby County

Earl McDaniels et al's No. 1 J. S. Swann, 470 ft. EL, 1,400 ft. SL, 100-ac. tr., Ann Gray Sur. Cd. 2,665-76 ft.; rec. 11 ft. hd. dense L., stain oil; cd. S.W. sd. 3,774-84 ft.; S.D. 4,070 ft.

P. & B. Oil Co.'s No. 2 W. C. Windham, A. K. English Sur. Set 10-in. csg. 170 ft.; T.D. 5,335½ ft.; pmpd. 20 B.F.P.D., 50% S.W.; tstg.

W. C. Parker's No. 1 F. G. Willey, 480 varas NL, 240 varas EL, 94-ac. tr., A. K. English Sur. Set 5½-in. csg. 3,330 ft.; prep. core 3,472 ft.

Superior Oil Co. of Tulsa's No. 2 Pickering Lbr. Co., 1,020 ft. N, 467 ft. E, SW cor. W. J. Crane Sur., in B. H. Simpson Sur. T.D., chalk 2,116 ft.; P. B. 1,957 ft.; acd. 4,000 gal.; dry; S.D. W.O.

Superior Oil Co. of Tulsa's No. 3 Pickering Lbr. Co., 1,620 ft. SE, 660 ft. due W, easterly NE cor. Thos Haley Sur. R.U.

WEST CENTRAL TEXAS DISTRICT

Brown County

F. Brittian's No. 1 G. R. McEnloe, 1,130 ft. NE, 330 ft. NW lines of J. Williams Sur. 33; 1,800-ft. test. Loc.

Callahan County

N. D. Gallagher's No. 1 E. Grisson, SE pt. Sec. 2, Blk. 8, S.P. Sur. S.D.R. 1,055 ft.

C. D. Hagerty's No. 1 T. Windham, NW SE Sec. 154, Blk. 3, G.H.&A. Sur.; 1,000-ft. test. S.D.O. 360 ft.

H. W. Lee's No. 1 Mrs. Murray Harris, SW cor. NW SW Sec. 99, B.B.B.&C. Sur.: 1,350-ft. test. T.D. 1,229 ft.; oil sd. 1,227-29 ft.; est. 30 B.O.P.D.; shot collapsed csg. 40 ft. off bttm.; C.O. to test.

W. H. Street's No. 1 Hill, 1,707 ft. from S and 1,368 ft. from E lines of John Gillespie Sur. 340; 1,275-ft. test. S.D.O. 1,290 ft.; may plug.

Coleman County

Lone Star Gas Co.'s No. 1 Irene Wells, 606 ft. from N and 770 ft. from W lines of Subd. 2, M. A. Fisk Sur. 630, 2,400-ft. test. Rng. 10-in. 915 ft.

Eastland County

W. N. Jackson's No. 1 R. Norris, 150 ft. S and W lines of Subd. 16, McLennan Co. Sch. Lds. Sur.; 1,170-ft. test. Drlg. 905 ft.

Jones & Stasney and Groover & Rose's No. 1 McElreath, C SW Sec. 104, Blk. 3, H.&T.C. Sur.; 3,500-ft. test. Drlg. 2,323 ft.; est. 10 B.O.P.D. in sd. 2,248-69 ft.

Steele & Black's No. 1 B. B. Poe, 180 ft. N and E lines, SE¼ Sec. 6, Blk. 2 H.&T.C. Sur.; 900-ft. test. T.D. 898 ft.; prep. P.B. and test; S.D.O. 898 ft.

Hamilton County

Wallace & Wallace's No. 2 C. E. Lund, C S½ E 20 ac., N½ SW¼, R. J. Bailey Sur. 51. Csg. 300 ft.; S.D. csg. 3,285 ft.; T. Marble Falls 3,245 ft.; S.D. 3,615 ft., for wire line.

Jones County

Best Oil Co.'s No. 1 A. A. McDuff, 5,200 ft. S, 1,100 ft. E lines of J. J. Hughes Sur. 256. Drlg. 625 ft.

J. C. Hunter's No. 1 J. Sayles, SE N¼ Subd. 8, R. Smith Sur. 192, just NE of Hawley; 3,300-ft. test. Drld. sat. 2,334-45 ft.; tstg. after 1,000-gal. acd. 2,338-45 ft.; est. 60 B.O.P.D. with 200 bbl. S.W. daily.

Merry Bros. & Perini's No. 1 C. S. Walker, SE cor. Walker tr., G. Martinez Sur. 137. Drlg. 1,765 ft.

J. D. Sandefer, Jr.'s No. 1 Hudspeth, 160-ac. tr. in Subd. 22, Edw. Miles Sur. 219. S.D.O. 2,575 ft.

Palo Pinto County

Georgian Oil Co.'s No. 1 J. K. Weldon, A. J. Smith Sur., Abst. 393; 2,500-ft. test. Loc.

Parker County

spray oil; fsg. bailer 4,412 ft.

C. F. Carter's No. 1 E. F. Yeager, 1,000 ft. from N, 300 ft. from E lines of C H. Atkinson Sur.; 1,000-ft. test. S.D.O. 269 ft.; H.F.W.; S.D.O. 670 ft.

W. M. Holland and C. Leidecker's No. 1 G. W. Keeling, F. Lidely Sur., Abst. 829, 1½ mi. W of Springtown; 3,500-ft. test. Drlg. 2,390 ft.

Runnels County

Homer Price's No. 1 Williams, C S½ Sec. 26, D. Diaz Sur., N outpost to Beddo field. Drlg. 2,900 ft.

Stephens County

J. R. Tolbert's No. 1 W. L. Martin, NW cor. NE¼ Blk. 1335, T.E.&L. Sur., 1½ mi. SW of Fagg area. Drlg. 3,400 ft.

NORTH TEXAS WILDCATS

Archer County

NW cor. Blk. 154, Robt. Carson Sur., Abst. 80; (Caddo lime test). Drlg. 4,239 ft.

Chapman & McFarlin's No. 7 Wilson, E. Hall Sur., Abst. 682. Drlg. 4,550 ft.

Paul Steed's No. 1 H. O. Prideaux, Sec. 1867, T.E.&L. Sur.; 5,000-ft. test. Drk.

Baylor County

Roy I. Carter Drilling Co.'s No. 1 S. G. Farmer, Sec. 3126, T.E.&L. Sur. Loc.

R. T. Myers' No. 1 W. H. Portwood, Sec. 19, H.&T.C. Sur., Blk. 45. Drlg. 1,040 ft.

Rogers' No. 1 Howe, J. Howe Sur., Abst. 572. S.D.O. 895 ft.

Clay County

Deep Rock Oil Co.'s No. 1 S. Dycus, Sec. 2602, T.E.&L. Sur., 3,600-ft. test. Drlg. 4,250 ft.

J. E. Farrell's No. 1 C. R. Malone, Sec. 12, T.&N.O. Sur., Abst. 828. Drlg. 6,204 ft.

Franklin Pet. Corp.'s No. 1 E. B. Staggs, Blk. 55, Archer C.S.L. Sur. S.D.O. 6,769 ft.

Walter Gant's No. 1 Edwards, S. C. Beldon Sur., Abst. 12, 4 mi. E of Henrietta. S.D.O. 6,345 ft.

Alexander Goldsmith's No. 1 Republic Nat. Gas Co., 312 ft. N, 495 ft. W lines of Blk. 14, Parker Co. Sch. Ld. Sur., 1 mi. S of town of Petrolia; 4,500-ft. test. 6⅝-in. 2,402 ft.; perf. csg. 1,600-10 ft.; C.O.; making 5,000 cu. ft. gas.

L. O. McMillan's No. 1 Tom Watson, Sec. 2620, T.E.&L. Sur. Drlg. 1,500 ft.

E. C. Norwood's No. 1 K. N. Hapgood, Sec. 61, M.C.S.L. Sur.; 6,000-ft. test Drld. oil show 5,972-78 ft.; coring below 5,978 ft.

Shell Oil Co., Inc.'s No. 1 Davis, Sec. 93. J. H. Belcher Sur. O.W.D.D.; L.S.O. 5,-687-5,720 ft.; T.D. 6,012 ft.; perf. csg. 3,590-3,600 ft.; tstd. 600 ft. S.W. in 30 min.; sqzd. off perf.; prep. abandon 6,012 ft.

Cooke County

J. D. Hancock's No. 1 F. R. Alexander, J. Woods Sur., Abst. 1140. Drk.

Denton County

Amon G. Carter's No. 1 W. P. and A. P. Allen, S. Westbrook Sur. Drlg. 220 ft.

Seitz, Comegy & Seitz' No. 1 F. Freeman, M.E.P.&P. Sur., Abst. 1470. Drlg. 5,505 ft.

Jack County

R. A. Conkling's No. 1 M. Hoofle, A. James Sur., Abst. 318, 3 mi. S Antelope; 3,500-ft. test. Drlg. 1,210 ft.

Harper Pet. Co.'s No. 1 F. V. Vanhooser, J. F. Lewis Sur. Spd. and S.D.

Harper Pet. Co.'s No. 1 J. W. Kinder, SW¼ Sec. 2667, T.E.&L. Sur., Abst 762. Show oil 2,116-31 ft.; T.D. 2,160 ft.; S.D.O.

Montague County

Walter Gant's No. 1 Will Laird, R. T. Millard Sur., Abst. 470, 7 mi. W of Sunset. Drlg. 4,282 ft.

Harper & Knappenberger's No. 1 A. A. Crum, J. G. McLendon Sur., Abst. 1797. Spdg.

Harvey Drlg. Co. et al's No. 1 D. A Threadgill, Sec. 10, Jack Co. Sch. Ld Sur. A-390; 6,000-ft. test. Prep. abandon 6,351 ft.

Summary of California Oil-Field Operations, April 1940

According to figures collected by the American Petroleum Institute, the total production of crude oil in California for April amounted to 18,403,433 bbl., an average of 613,448 bbl. per day. This is an increase of 11,114 bbl. per day over March production.

Total stocks of crude and all products in Pacific Coast territory increased during the month 1,008,632 bbl. The total stocks at the end of the month were 154,128,961 bbl. Due to error by a reporting company, stocks of gasoline as of March 31, 1940, were understated by 139,590 bbl. Corrected figures are shown at top of Page 2. The total stock increase for 1940, up to April 30, was 2,193,713 bbl.

Eighty wells were completed during the month with an initial daily production of 61,349 bbl., compared with 72 wells completed during March, with an initial production of 47,064 bbl.

CRUDE PETROLEUM PRODUCTION

(Figures or production and stocks are in barrels of 42 gal.)

	Total production	Daily average		
	April	Apr. 1940	Mar. 1940	Apr. 1939
Group No. 1—				
Arvin	59,854	1,995	2,271	456
Belridge-North	327,771	10,926	11,077	11,554
Belridge-South	60,303	2,010	1,974	1,112
Canal	176,851	5,895	5,668	4,261
Canfield Ranch	1,684	56	48	35
Coalinga	766,550	25,552	23,178	11,142
Cole's Levee	108,257	3,608	3,346	292
Edison	68,602	2,287	2,256	2,306
Elk Hills	372,622	12,420	12,446	9,892
Fruitvale	176,324	5,877	5,758	6,776
Greeley	107,299	3,577	3,440	1,621
Kern River	352,329	11,744	11,017	11,149
Kettleman Middle Dome				34
Kettleman North Dome	1,412,583	47,086	47,437	53,057
Lost Hills	126,081	4,203	4,191	3,305
McKittrick	107,077	3,569	3,554	2,940
Midway-Sunset	1,550,483	51,683	52,136	52,956
Mountain View	218,734	7,291	6,683	8,428
Mount Poso	292,745	9,758	9,435	13,123
Paloma	5,576	186	182	
Rio Bravo	256,266	8,542	7,996	8,398
Round Mountain	218,599	7,287	7,376	10,930
Strand	41,913	1,397	1,416	8,652
Ten Section	266,665	8,889	8,701	
Tupman	49,174	1,639	1,087	519
Wasco	43,971	1,466	1,291	719
Wheeler Ridge	9,444	315	308	321
Group No. 2—				
Capitan	55,956	1,865	1,916	2,484
Elwood	111,802	3,727	3,833	4,257
Rincon	121,778	4,059	3,761	2,915
San Miguelito	95,362	3,179	3,048	2,413
Santa Barbara	7,384	246	331	280
Santa Maria	116,589	3,886	4,620	7,350
Santa Maria Valley	550,765	18,359	12,405	11,227
Summerland	714	24	28	31
Ventura Avenue	979,286	32,643	34,307	33,194
Ventura-Newhall	216,170	7,206	7,377	5,940
Watsonville	750	25	25	30
Group No. 3—				
Brea-Olinda	175,262	5,842	5,618	5,565
Coyote-East	118,488	3,950	3,341	2,241
Coyote-West	186,497	6,217	6,514	7,712
Dominguez	615,065	20,502	19,452	21,148
El Segundo	72,304	2,410	2,379	3,302
Huntington Beach	810,209	27,007	27,320	29,167
Inglewood	373,192	12,440	12,865	11,697
Lawndale	1,201	40	44	67
Long Beach	1,345,666	44,856	44,295	48,559
Los Angeles-Salt Lake	15,675	523	527	493
Montebello	621,759	20,725	20,355	15,496
Playa Del Rey	131,434	4,381	4,240	5,201
Potrero	56,495	1,883	1,701	954
Richfield	279,950	9,331	9,227	8,552
Rosecrans	283,817	9,461	9,720	13,533
Santa Fe Springs	780,399	26,013	25,876	27,791
Seal Beach	216,420	7,214	7,320	7,356
Torrance	349,361	11,645	12,035	21,721
Whittier	29,105	970	1,001	970
Wilmington	2,506,821	83,561	82,581	87,838
Total	18,403,433	613,448	602,334	613,462
March	18,672,342	602,334		
Increase (*Decrease)	*268,909	11,114		

CALIFORNIA DEVELOPMENT

	New rigs up	Active drilling	Producers completed	Daily initial output	Active producing	Abd. wells—Drillers	Abd. wells—Producers
Group No. 1—							
Arvin	0	0	0	.....	15	0	0
Belridge, North	3	2	1	304	79	0	0
Belridge, South	0	0	0	.....	163	0	0
Canal	1	1	1	890	33	0	0
Canfield Ranch	0	0	0	.....	1	0	0
Coalinga	9	23	5	6,459	887	0	0
Cole's Levee	1	4	0	.....	20	1	0
Edison	0	0	0	.....	93	0	1
Elk Hills	0	0	0	.....	194	0	0
Fruitvale	0	1	0	.....	170	0	0
Greeley	0	6	1	3,380	28	0	0
Kern River	6	6	6	30	1,549	2	0
Kettleman Middle Dome	0	0	0	.....	.....	0	0
Kettleman North Dome	0	12	7	7,966	254	0	0
Lost Hills	0	0	0	.....	357	0	0
McKittrick	1	2	0	.....	208	0	0
Midway-Sunset	2	3	4	556	2,600	2	1
Mountain View	0	0	0	.....	186	0	0
Mount Poso	3	2	2	140	275	1	0
Paloma	0	2	0	.....	1	0	0
Rio Bravo	2	4	3	4,280	47	0	0
Round Mountain	1	1	0	.....	220	0	0
Strand	0	1	1	1,688	8	0	0
Ten Section	1	3	1	966	45	0	0
Tupman	9	8	3	4,732	8	0	0
Wasco	1	0	2	6,379	11	0	0
Wheeler Ridge	0	1	0	.....	34	0	0
Group No. 2—							
Capitan	0	0	0	.....	43	0	0
Elwood	0	0	0	.....	72	0	0
Rincon	2	0	2	423	62	0	1
San Miguelito	0	1	1	2,240	19	0	0
Santa Barbara	0	0	0	.....	21	0	2
Santa Maria	1	0	1	51	162	0	0
Santa Maria Valley	1	1	0	.....	142	0	0
Summerland	0	0	0	.....	8	0	0
Ventura Avenue	4	12	3	7,340	315	0	0
Ventura-Newhall	3	8	1	264	567	2	1
Watsonville	0	0	0	.....	7	0	0
Group No. 3—							
Brea-Olinda	0	0	0	.....	359	0	0
Coyote, East	1	1	0	.....	79	0	0
Coyote, West	0	1	0	.....	60	0	0
Dominguez	5	3	4	3,493	191	0	1
El Segundo	0	0	0	.....	46	0	1
Huntington Beach	6	2	2	536	531	0	0
Inglewood	0	1	0	.....	208	0	0
Lawndale	0	0	0	.....	5	0	0
Long Beach	0	5	3	325	1,214	2	6
Los Angeles-Salt Lake	0	0	0	.....	103	4	4
Montebello	2	7	4	1,214	361	0	0
Newport	0	0	0	.....	.....	0	2
Playa Del Rey	0	0	0	.....	156	0	2
Potrero	0	1	0	.....	18	0	1
Richfield	0	1	1	75	302	0	0
Rosecrans	3	8	2	540	149	0	2
Santa Fe Springs	0	0	0	.....	580	0	3
Seal Beach	1	0	1	1,185	118	0	1
Torrance	0	1	0	.....	694	2	8
Whittier	0	1	0	.....	142	0	0
Wilmington	6	11	17	5,893	817	0	0
Miscellaneous drilling	9	35	0	.....	.....	7	0
Group No. 4—Gas fields—							
Buena Vista Lake	0	0	0	.....	4	0	0
Buttonwillow	0	0	0	.....	9	0	1
Chowchilla	0	0	0	.....	.....	0	0
Delano	0	0	1	Gas	13	0	0
Dudley Ridge	0	0	0	.....	.....	0	1
Fairfield Knolls	0	0	0	.....	.....	0	0
Goleta	0	0	0	.....	.....	0	0
Marysville Buttes	0	1	0	.....	3	0	0
McDonald Island	0	0	0	.....	5	0	0
Rio Vista	0	0	0	.....	23	0	0
Semi-Tropic	0	0	0	.....	.....	0	0
Tracy	0	0	0	.....	4	0	1
Total April	84	183	80	61,349	15,098	19	40
Total March	105	191	72	47,064	14,996	8	18
Increase (*Decrease)	*21	*8	8	14,285	102	11	22

North Sector Tinsley Field Attracts Attention

By GEORGE WEBER

JACKSON, Miss., July 8.—Tinsley again became the center of attention in Mississippi, as wells in the north sector of the field continued to find new production in several sands. A good drill-stem test in what is termed the Perry sand, and a second test in another nearby well in the Lammons sand, coupled with a completion of a well in two sands, the Woodruff and Stevens, enhance the importance of the field, and direct considerable interest to the north edge development.

Elsewhere in the state no shows of importance were encountered in the numerous wildcats. Three deep tests were abandoned during the past week, and new activity beginning in Jones, Madison and Montgomery counties sustained wildcatting interest. Attala and Issequena counties, Mississippi, and the Marion-Walthall County sector is due a wildcat test following geophysical shooting on a large lumber tract.

Geophysical activity continues strong, with about 67 crews in Mississippi and 6 in Alabama.

Tinsley Developments

On the north edge of the Tinsley field, Yazoo County, developments in three wells were considered of great interest this past week. In Hassie Hunt, 1-B Lammons, SW NE 1-10-3, the Woodruff sand was encountered at about 4,846-76 ft., and another sand, in the Stevens group, at 5,446-62 ft. Both oil sands were cased off, and operator perforated in the Woodruff zone at 4,848-78 ft. and in the Stevens sand at 5,446-62 ft. and is running tubing to complete the well in both sands.

Union Producing Co., 2 Partridge, SE SE 1-10-3, topped the Woodruff sand at 4,847 ft. and an important strike showed the Perry sand at 5,265 ft. A drill-stem test of the latter horizon, at 5,265-5,305 ft., showed recovery of 2,300 ft. of oil and 92 ft. of oil-cut mud in 12 minutes, with a working pressure of 21.5 lb., and a bottom-hole pressure of 460 lb. Another sand, probably in the Stevens group was reported at 5,389-5,408 ft.

Sand in Twiner

Union Producing Co., 4 Twiner, NE NW 1-10-3, last week found the Woodruff sand of only nominal importance when it showed recovery of 200 ft. of oil and 150 ft. of oil and mud on a drill-stem test at 4,832-96 ft. in 10 minutes. Upon drilling deeper, the test encountered what is termed the Lammons sand, named for its discovery in the Hassie Hunt, 1 Lammons to the south. This horizon, tested at 5,459-79 ft., showed recovery of 2,390 ft. of oil and 125 ft. of drilling fluid, with a reported salty taste, in 10 minutes, with a working pressure of 26 lb., and a bottom-hole pressure of 560 lb. The test is also reported to have found the same sand that is producing in the Slick-Urschel, 7 Slick estate, at 5,384 ft. This latter sand has not yet been definitely located, and it may be found to belong to the Stevens group.

The presence of these additional sands on the north edge of Tinsley focus attention on possibilities for further production from horizons other than the Woodruff, Tinsley's principal oil sand. The Lammons sand appears to be a distinctive horizon from the other Eutaw sections, since its oil, running 46 gravity, is much higher than that from the Stevens sand or sands which it underlies. This Lammons sand is believed to be either absent, or productive of salt water in the area south of the major Tinsley fault, as wells deepened below the Stevens section have not found it.

New Production Level

The crude found in the Slick No. 7, which recently was hailed a new sand discovery, compares with Stevens crude in gravity. The Perry sand, which lies between the Stevens zone in the Eutaw formation and the Woodruff sand in the Selma chalk above, was considered a stray sand when discovered and brought into production in Union Producing Co., 4 Perry, several weeks ago. The surprise test which it showed in the Union, 2 Partridge, 3 miles north of the Perry discovery well, adds to its importance as a possible further reserve in Tinsley. The recent test in the Partridge showed the sand to be much better, and an easy completion is expected in the horizon, as compared with the difficulty encountered in completing No. 4 Perry.

Due to the several sands now producing in the north section of Tinsley, and the faulted structure, there is at present considerable confusion concerning the identification of the various zones. Further development may clarify the situation, and production relationships of wells in the field may further add to information regarding the sands of the Stevens group and others in the Eutaw which cannot now be definitely identified.

MISSISSIPPI COMPLETIONS

Wildcat—Clarke County

Arkansas-Mississippi, 1 Long Bell Lumber Co. . . . . SW NE 35-3n-17e
Dry. T.D. 7,011 ft., Tuscaloosa.

Wildcats—Yazoo County

Exchange, 1 T. A. Bennett . . . . . SW SW SE 28-12n-2e
Dry. T.D. 5,830 ft., no shows.
Hill & Hill, 1 W. A. Montgomery . . . . SE SW SE 24-12n-2e
Dry. T.D. 5,701 ft., showed good saturation 4,845-47 ft., but not enough section to test.

Pickens—Yazoo County

Exchange, 4 Wilburn . . . . . NE SE 31-12n-3e
Flowed 443 bbl. oil and 20 bbl. salt water, open tubing, Wilburn sand 4,858-64 ft., T.D. 4,864 ft.

Tinsley—Yazoo County

Union Producing Co., 2 Cesana . . . . . SW SW 18-10-2
Flowed 659 bbl., ¼-in. choke, tubing pressure 295 lb., casing pressure 190 lb., T.D. 4,843 ft.

MISSISSIPPI

Attala County

P. & M. Oil Co.'s No. 1 J. A. McMillin, 300 ft. SW cor. SE SE Sec. 26-13n-5e. Spd. to 25 ft.; S.D.; titles.
Pioneer Oil Co.'s No. 1 Weeks, SW SW SW Sec. 29-15n-6e. Tent. loc.

Carroll County

John Woodley et al's No. 1 Hemphill, NW SE NW Sec. 27-19n-2e. M.I.M.

Copiah County

G. C. Koch's (former Triangle Drilling Co.) No. 1 W. W. Broome, 153 ft. SW cor. SW SE Sec. 1-10n-8e. T.D. 3,628 ft.; S.D.

Grenada County

Schuba Valley Prod. Co.'s No. 1 Connecticut General Life Ins. Co., C NE SE Sec. 28-23n-5e. Drk.
Ed Spencer's No. 1 Gillon, Sec. 17-22n-7e. Spdd.; S.D. 360 ft.; S.D.; R.U.

Hinds County

Harvey Robinson and J. P. Frame's No. 1 Alford, SW SE Sec. 18-6n-1e. Set 10¾-in. csg. 750 ft.; D.S. stuck 3,094 ft.; washing over stuck D.S.

Holmes County

L. A. Hawkins' No. 1 B. W. Humphrey, 1,980 ft. S, 330 ft. W NE cor. Sec. 33-13n-2e. S.D. 1,600 ft.; arng. resume drlg.

Issaquena County

Locke & Mellard's No. 1 W. Gary, 660 ft. SE cor. NW¼ Sec. 14-9n-6w. Loc.
W. G. Ray Drlg. Co.'s No. 1 Irby Charping, approx. C NE NW Sec. 29-10n-8w. Set 13⅜-in. csg. 145 ft.; **T.D. 5,020 ft.;** moved rig off; will dpn. to **7,500 ft.**

Itawamba County

G. C. Grasty et al's No. 1 Ky. Lbr. Co., 1,320 ft. E, 660 ft. S, C Sec. 7-10s-10e. Twisted off D.S.; skd. 24 ft. S and spd.; set 10¾-in. csg. 170 ft.; S.O. 1,500 ft.; T. Trenton L. 1,600 ft.; tstd. sulf. wtr. 2,793-97 ft.; ran csg. to 2,795 ft. and shut off sulfur wtr.; bailed S.O. and some gas; T.D. 3,530 ft.; pulled and recmtd. 7-in. csg. 1,250 ft.; will perf. and acd. horizons at 360-570 ft. and 1,150-1,240 ft.; S.D.; W.O.; acd.

Jefferson Davis County

J. W. Richardson's No. 1 M. Berry, C SW NE Sec. 15-9n-19w. Drlg. 1,175 ft. (cor.).

Jones County

T. N. Smith's No. 1 Hollifield, NW SW NW Sec. 20-8n-12w. Drk.
R. W. Williams' No. 1 Eastman-Gardner, NE SW Sec. 7-8n-12w. Loc.

Kemper County

R. E. Manning's (Crabb et al) No. 1 W. T. Caldwell, NW SE Sec. 25-9n-15w. 10¾-in. csg. 86 ft.; set 6-in. csg. 1,320 ft.; T.D. 1,640 ft.; cg. 3,306 ft. (cor.).
R. M. Crabb et al's No. 1 Land, NW NE Sec. 12-10n-14e. Drk.

Lamar County

Miss.-La. Oil Synd.'s No. 1 Simmons 1,020 ft. N, 56 ft. W, SE cor. NE¼ Sec. 32-3n-14w. S.D. 920 ft. (cor. T.D.)

Madison County

Ralph A. Johnston's No. 1 J. W. Locke School Land, NE NE Sec. 16-11n-3e. M.I.M.
Owen & Fraim's No. 1 Talmadge, SW NE Sec. 22-11n-3e. Loc.
Stanolind Oil & Gas Co.'s No. 1 Higgason, C W½ SW Sec. 10-11n-5e. Loc.

Monroe County

Willmut Gas & Oil Co.'s No. 1 Rye, 300 ft. N and E C Sec. 22-15n-17e. Set 10¾-in. csg. 625 ft.; S.D.; T.D. 2,165 ft.

Montgomery County

Gulf Ref. Co.'s No. 1 W. C. Brooks, Sec. 31-19n-7e. M.I.M.
E. R. Henderson's No. 1 Columbian Mutual Life Ins. Co., Sec. 36-21-5e. R.U.

Neshoba County

J. P. Evans' No. 1 Mary Oliver, C SW Sec. 18-9n-13e. Loc.

Oktibbeha County

Oktibbeha Oil & Gas Co.'s (Nick Shiarella) No. 1 L. L. Murphy, NE NE NW Sec. 28-17n-12e. Drlg. hd. L. 3,431 ft.

Perry County

Fohs Oil Co.'s No. 1 Bond Lbr. Co., 907.5 ft. N, 660 ft. W, C Sec. 17-1s-11w. R.U.

Pike County

S. R. Crouch's No. 1 Cupit, 360 ft. N. 660 ft. W, SE cor. NE SW Sec. 25-2n-7e. Set 6-in. csg. 729 ft.; S.D. 3,390 ft.

Prentiss County

Home Dev. Co.'s No. 1 Mrs. A. Allen. Sec. 8-7s-9e. Drlg. 1,913 ft., no report.
Robert Burn's No. 1 Walker, Sec. 15-11n-5e. Bldg. drk.

Rankin County

M. Lerew's No. 1 E. O. Rainey, C SE NE Sec. 14-5n-1e. M.I.M.

Scott County

E. L. Martin's No. 1 Newell Mineral Lse. Co., 660 ft. W, 330 ft. S, NE cor. Sec. 5-6n-7e. Spudded.

Smith County

W. O. Allen's No. 1 Tom Henry, C W½ SW Sec. 4-7n-4w. Drk.
Haynes B. Owenby Drlg. Co.'s No. 1 State, C SE NE Sec. 6-2n-9e. Set 10¾-in. csg. 510 ft. (cor.); cg. 5,860 ft.

Warren County

H. C. Cummings et al's No. 1 T. H. Morrissey, C E½ W½ NE Sec. 8-17n-2e. T.D. 5,774 ft.; hole bridged 1,250 ft.; sdtrkd. and drld. back in old hole 3,000 ft.; T.D. 6,001 ft., rd. sh.; S.D.

Washington County

Chas. Perkins' No. 1 Gen. American Frams, 2,000 ft. N SE cor. Sec. 9-14n-8w. T.D. 500 ft.; S.D.
Stewart Oil Co.'s No. 1 R. H. Creekmore, C SW NE Sec. 21-24n-7e. O.W.D.D.; O.T.D. 3,188 ft.; S.D.

Wayne County

W. E. Stewart's No. 1 Cora McRae, NW SW Sec. 25-24n-6e. Loc.
Tri-County Oil Co.'s No. 1 Jones, C SW SE Sec. 33-8n-7w. Set 10-in. csg. 20 ft.; S.D.

Yalobusha County

J. E. Green's No. 1 Walter-Goldman, 247 ft. SW cor., SE NW Sec. 23-25n-6e. Drlg. 475 ft.; cd. sds. 260-320 ft. and 400-68 ft.; T.D. 1,375 ft.; S.D.; plan to move in heavier equip.

Yazoo County

Leon Dunn's No. 1 H. H. Pepper, 1,024.5 ft. E, 330 ft. S NW cor. Sec. 26-12n-2e. Set 9⅝-in. 611 ft.; drlg. 3,430 ft.
Leon Dunn's No. 2 H. H. Pepper, 1224 ft. E, 990 ft. S NW cor. Sec. 26-12n-2e. Set 9⅝-in. csg. 611 ft.; drlg. 4,870 ft.
Hassie Hunt's No. 1-B Lammons, C SW NE Sec. 1-10-3. Woodruff sd. 4,854-67 ft.; Stevens sd. 5,433-60 ft.; perf. 4,848-78 ft. and 5,446-62 ft.; rng. tbg.
Hassie Hunt's No. 2-B Lammons, C NE NE Sec. 1-10-3. R.U.
E. C. Johnston's No. 4 Brumfield, Sec. 2-10-3. T. Woodruff sd. 4,824 ft.; drlg. 5,350 ft. Eutaw.
Slick-Urschel Oil Co.'s No. 3 T. B. Slick, 330 ft. N, 660 ft. W, SE cor. Sec. 11-10-3. Drlg. bl. sh. 4,307 ft.
C. L. Thompson, Rowan & Hope's No. 1 Joe Elliott-Mrs. Mary Edwards, 900 ft. S, 2,310 ft. W of NE cor. Sec. 30-10n-3w. Drlg. sh. 6,097 ft.
Union Prod. Co.'s No. 2 Partridge, SE SE Sec. 1-10-3. T. Woodruff sd. 4,847 ft.; T. Perry sd. 5,265 ft.; D.S.T. 5,265-5,305 ft. rec. 2,300 ft. oil and 92 ft. oil-cut mud in 12 min.; oil sd. cd. 5,389-5,405 ft.; T.D. 5,408 ft.
Union Prod. Co.'s No. 4 J. M. Twiner, C NE NW Sec. 1-10-3. Set 10¾-in. csg. 593 ft.; D.S.T. 4,832-96 ft.; rec. 200 ft. oil and 150 ft. oil and mud in Woodruff sd.; D.S.T. Lammons sd. 5,459-79 ft. rec. 2,390 ft. oil and 125 ft. drlg. fluid in 10 min.; W.P. 26 lb.; B.H.P. 560 lb.
Union Prod. Co.'s No. 5 Twiner, 2,019 ft. S, 2,118 ft. W, NE cor. Sec. 1-10-3. M.I.M.

ALABAMA

Fayette County

B. L. Fillingame's No. 1 Alabama Educational Ass'n., NW SW Sec. 3-16s-12w. Loc.

Green County

L. M. Glasco's (formerly E. C. Johnson's) No. 1 Willis, SW Sec. 11-20n-1e. Set 10 ft. surf. csg.; S.D. 45 ft.

Lawrence County

Mid-Southern Pet. Co.'s No. 1 Jackson, NE NE Sec. 30-7s-6w. Set surf. csg.; drlg. 970 ft.

Marion County

Seaboard Oil Co.'s No. 1 Clark et al., 360 ft. W, 660 ft. N, SE cor. SE SW Sec. 28-11s-14w. Shot 638-45 ft. with 130 qt. nitroglycerin; crooked hole; skdd. over; T.D. 1,131 ft.; fsg.

Mobile County

Rose & Hunt's (formerly W. L. McClanahan) No. 1 J. A. Stafford, 300 ft. N, 150 ft. W SE cor. NW SW **Sec. 24-7s-3w. Set 10-in. csg. 750 ft.;** reported S.G. 3,475-90 ft. and S.O. 4,550-72 ft.; ran electrical log 5,590 ft.; T.D. 6,541 ft.; ran electrical survey; S.D.; plan to dpn.
Plains Prod. Co.'s No. 1 Daly-Hardman, NW cor. SE SE Sec. 2-6s-4w. Spdd.; S.D.

Walker County

Champlin O. & R. Co.'s No. 1 Galloway Coal Co., Sec. 12-13s-10w. Drlg. sd. 614 ft.

FLORIDA

Dade County

Wm. G. Blanchard et al's No. 1 Everglades, 200 ft. E, 100 ft. N, SE cor. Sec. 31-53s-35e. Set 16-in. csg. 140 ft.; drlg. L.&sh. 1,328 ft. (no report).

Levy County

Florida Oil Discovery Co.'s No. 2 Cedar Key, SW SW NE Sec. 9-15s-13e. T.D. 5,286 ft.; S.D. 4,150-79 ft.; set 4-in. csg. 4,230 ft.; perf. 4,150-79 ft.; ran tbg. and swbd. slight trace oil and S.G.; bailing S.W.; perp. perf. csg. 4,119-32 ft. (no report).
Harkey & Houck's No. 1 Crapps, Sec. 15-14s-17e. T.D. 900 ft.; no reports.

Suwannee County

Wm. G. Blanchard et al's No. 1 Lucy Cotton, 774 ft. N, 153 ft. W, SE cor. NE¼ Sec. 35-3s-11e. S.D. 184 ft.
J. W. Phillips Oil Explrtn. Co.'s No. 1 Shilkett, NW NW Sec. 14-4s-14e. S.D. cor. T.D. 369 ft.

GEORGIA

Clinch County

Georgia Resources, Inc.'s No. 1 Gillican, C Land Lot 200, 12th Land Dist. Set 10-in. csg. 736 ft.; slight odor oil 1,025 ft.; cg. 1,375 ft.; no report.
Georgia Resources, Inc.'s No. 1 Dickerson, Land Lot 273, Land Dist. 12 Lost hole 350 ft.; moved off and spdg. new hole.

Montgomery County

E. O. Meadows' No. 3 Moses, SW R.R. station, Uvalda Sur. Set 8-in. 1,880 ft.; reported traces O.&G. 1,755-1,829 ft.

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1940 High	1940 Low	Week ended July 6 High	Week ended July 6 Low	Week ended July 6 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1939	Com. sh. earn. 1939	Com. sh. earn. 1938	1939 High	1939 Low	1938 High	1938 Low
58½	38½	45¾	45	45	Amerada Corp.	788,675	N.P.	50cQ	4-30-40	$2.00	$1.56	$2.07	74½	50	78	55
27⅛	18¼	21½	21¼	21½	Atlantic Refining	2,663,999	$25	25cQ	6-15-40	1.00	1.66	1.40	24¾	18⅛	27⅝	17¾
16⅝	8½	10	9½	9⅝	Barber Asphalt Co.	390,223	$10	25c	5-21-40	.25	1.39	—.85	21	10¼	23¾	12⅛
13⅜	7⅛	8¼	7¾	8⅛	Barnsdall Oil Co.	2,558,779	$5	15c	6-8-40	.90	.76	1.26	19½	11⅛	21⅝	10⅛
8⅛	5½	6½	6¼	6⅜	Consolidated Oil Corp.	13,751,726	N.P.	20cQ	8-15-40	.80	.55	.55	9⅞	6½	10¾	7
25	16⅛	18	17½	18	Continental Oil of Delaware	4,682,572	$5	25cQ	3-25-40	1.00	1.35	1.10	31½	19⅞	35¾	21¼
6⅞	3⅝	4	3⅞	3⅞	Houston Oil	1,098,618	$25	....	10-17-30	....	.43	.83	9⅝	4½	9¾	5
14⅜	9	9½	9⅜	9⅜	Lion Oil Refining	435,815	N.P.	25cQ	4-20-40	1.00	1.50	2.09	18⅛	10	25⅛	15⅝
17⅜	11½	13½	13	13⅛	Mid-Continent Petroleum	1,857,912	$10	40c	6-1-40	.60	1.42	.56	18	11⅛	22⅝	12¼
11	7⅛	7¾	7¾	7¾	Mission Corporation	1,378,645	$10	40c	12-15-39	.65	.87	1.04	14⅞	8¾	17¾	10⅝
9¾	4⅝	5¾	5⅝	5¾	National Supply	1,155,517	$10	....	12-22-37	....	—.87	—.79	15½	5⅝	23	12½
8¾	5⅜	6⅛	5⅞	6	Ohio Oil Co.	6,563,377	N.P.	20c	6-15-40	....	—.10	.25	10½	6	14⅞	8⅞
8¼	5¾	..	..	..	Pacific Western Oil	1,000,000	N.P.	40c	12-19-39	.40	.81	1.22	11⅞	7	15⅞	10¼
10½	6¾	8	8	8	Pan American Pet. Trans.	4,702,945	$5	...	12-31-37	....	1.10	.08	8¾	5	9¼	6¼
41¾	27⅛	32½	31½	32	Phillips Petroleum	4,449,052	N.P.	50cQ	6-1-40	2.00	2.21	2.03	46½	31¼	44⅜	27¼
22¾	15	16⅝	16½	16⅝	Plymouth Oil Co.	1,038,633	$5	35cQ	3-30-40	§1.40	2.38	2.59	24	17⅛	25⅜	15
11½	7	7½	7¼	7¼	Pure Oil Co.	3,982,031	N.P.	25c	12-20-39	.25	1.11	.38	11¾	6⅛	13½	8¼
8⅝	5⅞	7⅝	7½	7⅝	Richfield Oil Corp.	4,010,000	N.P.	50c	12-18-39	.50	.65	.51	10¼	6⅝	9⅞	5
20	11	12⅝	12⅝	12⅝	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	6-15-40	1.00	1.40	1.52	24⅜	15½	27½	15⅛
13⅛	7⅝	8½	8	8⅛	Shell Union Oil	13,070,625	N.P.	25c	12-20-39	.50	.77	.72	17¼	9⅞	18⅜	10
23¼	12¼	13½	13⅛	13½	Skelly Oil	995,349	$15	25c	1-30-40	.75	1.99	2.27	29½	15½	34¾	18½
12½	7⅛	8¾	8¼	8¾	Socony-Vacuum	31,206,071	$15	25cSA	3-15-40	.50	1.10	1.29	15⅛	10¼	16⅜	10¾
26⅛	17⅜	18¾	18	18½	Standard Oil of California	13,003,953	N.P.	25cQ	3-15-40	1.10	1.38	2.22	33⅝	24¼	34⅞	25⅛
29	20¾	23	22⅝	23	Standard Oil (Indiana)	15,272,020	$25	25c	6-15-40	1.25	2.23	1.82	30	22¾	35½	24¾
46½	29⅞	33	32⅛	32¾	Standard Oil of New Jersey	27,280,998	$25	1.00†	6-15-40	1.25	3.26	2.86	53½	38	58⅜	39¾
65⅞	47	50⅞	50	50⅞	Sun Oil	2,434,863	N.P.	25c•	6-15-40	1.00	2.74	1.07	66	45¾	65⅛	45
2½	1¼	1½	1¼	1⅜	Superior Oil Corp.	1,388,979	$1	10c	12-28-38	....	.04	.24	3⅝	1⅜	4¼	1¾
47⅝	33	38½	37⅜	38½	Texas Corp.	10,876,139	$25	50cQ	4-1-40	2.00	3.02	2.13	50¾	32½	49⅝	32⅝
4¼	2½	2⅞	2¾	2¾	Texas Gulf Producing Co.	888,146	N.P.	10c	6-15-40	.20	.69	.86	5¾	3⅛	5⅞	2⅝
8⅝	5½	6	6	6	Texas Pacific Coal & Oil	888,236	$10	10c	6-1-40	.40	1.00	1.16	11⅜	7	12½	7
12	8¾	9¼	9⅛	9¼	Tide Water Associated	6,371,827	$10	25c	6-1-40	.80	1.05	1.28	14¼	9½	15¾	10⅛
17½	12	12¾	12½	12¾	Union Oil Co. of California	4,666,270	$25	25c	5-10-40	1.05	1.25	1.47	19¾	15⅛	22½	17⅛
29⅞	22¾	25	24½	24½	Union Tank Car Co.	1,177,381	N.P.	45c	6-1-40	1.30	2.07	1.16	24¼	20⅛	23½	20
3⅝	1⅞	2	2	2	Wilcox Oil & Gas	470,768	$5	10c	2-15-40	...	.77	.52	4¼	2⅝	3½	1⅝

•Also 5 per cent in stock. †Includes extras. ‡Also 2 per cent in stock. §Also 4 per cent in stock. ‖Also 2½ per cent in stock. ¶Also 1⅛ per cent in stock. —Deficit.

New York Curb Exchange

1940 High	1940 Low	Week ended July 6 High	Week ended July 6 Low	Week ended July 6 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1939	Com. sh. earn. 1939	Com. sh. earn. 1938	1939 High	1939 Low	1938 High	1938 Low
10¾	5	5⅞	5½	5½	American Republics Corp.	1,308,049	$10	10c	7-11-38	....	$0.14	—.22	11¾	5½	11¾	5
3¼	1⅜	2	2	2	Bridgeport Machine Co.	263,700	N.P.	$1.25	12-30-37	....	—.95	—.14	7¼	2½	10¼	4⅞
43	28	34¼	34	34	Buckeye Pipe Line Co.	200,000	$50	$1	6-15-40	$2.50	3.13	2.36	34¾	26½	39	22½
117	95	104¾	104¾	104¾	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	6-24-40	6.00	7.87	5.32	130	108⅝	128	97
6¾	4	5⅛	5	5⅛	Cities Service (new)	3,703,978	$10	....	6-1-32	....	.68	.23	9¼	4¼	11	5⅛
2⅛	1⅛	..	..	..	Cosden Petroleum	465,332	$1	....	.....	....	....	....	2¼	½	2⅜	⅞
24¼	13	14½	14	14	Creole Petroleum	6,974,356	$5	50cSA†	6-15-40	1.00	1.38	1.64	28	16¾	27½	17½
4⅜	2⅞	..	..	..	Darby Petroleum	351,390	$5	25cSA	1-15-39	.25	.03	.69	7⅛	3⅝	10¼	5½
2	1¼	..	..	..	Derby Oil & Refining	263,162	N.P.	....	.....	...	—.37	—.91	2⅝	1½	3½	1½
31	23½	23	23	23	Eureka Pipe Line	50,000	$50	75c	5-1-40	2.00	.63	—.37	23	15⅛	31	16
39⅞	25⅛	28	27½	27¾	Gulf Oil Corp.	9,076,202	$25	25cQ	7-1-40	2.00	1.69	1.43	45⅛	29¼	46⅞	33
68	47⅛	53½	52	52½	Humble Oil & Refining	8,987,840	N.P.	62½c	7-1-40	2.00	3.33	3.98	71	52½	72⅝	56
12⅜	5½	6½	5¾	6¼	Imperial Oil of Canada	26,965,078	N.P.	37½c†	6-1-40	1.00	.71	.96	17	11⅜	19½	14⅛
7¾	5¾	..	..	..	Indiana Pipe Line	300,000	$7.50	10c	5-15-40	.50	.33	.47	7¼	5½	9⅜	6
19¾	8¼	9⅝	8½	9⅝	International Petroleum	14,324,088	N.P.	75c	6-1-40	1.75	1.19	1.98	27½	17	31¼	21
2¾	1⅝	1¾	1¾	1¾	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	..	.06	.14	3¾	2⅛	5	2⅛
10¾	7⅝	9	8⅞	9	Lone Star Gas	5,518,347	N.P.	20c	4-22-40	.70	.98	.88	10½	7⅛	10⅜	6⅝
6¼	3¾	4½	4½	4½	Louisiana Land & Exp.	2,966,762	$1	10c	6-15-40	.35	.22	.45	7¾	4	9⅜	6½
17	14½	10	10	10	Margay Oil Corp.	149,943	N.P.	25cQ	7-10-40	1.00	1.52	2.28	17	14½	24	16
8½	6½	7	6¾	6¾	Midwest Oil Co.	998,474	$10	45c	6-15-40	.90	.99	.93	8¾	6⅝	9¾	6⅝
6¼	4⅞	5¼	5⅛	5⅛	Mountain Producers	1,593,584	$10	30cSA	6-15-40	.60	.70	.62	6	4⅞	5¾	4½
13⅛	10	11⅛	10½	10½	National Fuel Gas	3,810,183	N.P.	25cQ	4-15-40	1.00	.95	.84	14	11¼	14⅝	11½
12½	8¾	..	..	..	National Transit	509,000	$12.50	50c	6-15-40	.85	.91	.88	9½	7¼	9¼	6½
1¼	⅞	⅞	⅞	⅞	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	.	.02	.02	1¾	1	2⅝	1½
7¾	5⅝	5⅝	5⅝	5⅝	New York Transit	100,000	$5	25c	4-15-40	.40	.88	.16	6	4	4½	3½
9⅞	6	7	7	7	Northern Pipe Line	120,000	$10	40c	6-1-40	.30	.31	.24	7	4½	6	4
5½	2½	2⅞	2⅝	2¾	Pantepec Oil	2,856,872	$1	....	.....	....	....	....	7⅝	4	7¾	3½
3¼	1½	..	..	..	Root Petroleum Co.	336,045	$1	25c	2-1-37	....	.70	.17	5	1¼	4½	1⅝
2½	1½	..	..	..	Ryan Consolidated	298,931	N.P.	....	.....	..	.16	.29	3	1⅞	4	2⅛
11¾	4⅞	7	7	7	Southern Pipe Line	100,000	$10	15c	3-1-40	.30	.25	—.27	4⅞	3½	5⅜	3¼
44	28	33	32¾	32⅞	South Penn Oil	1,000,000	$25	37½c	6-28-40	3.00	2.84	1.44	40½	26¾	39	28¾
35	22	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	50c	7-1-40	2.00	2.06	—.41	23	18	22¼	16½
20⅞	16½	18	18	18	Standard Oil of Kentucky	2,604,790	$10	25c	6-15-40	1.30	1.53	1.45	20⅛	17¼	18¾	15
41¾	26¼	31	30½	30½	Standard Oil of Ohio	753,740	$25	25c	6-15-40	1.50	6.64	1.81	32¾	17	22¾	16¼
2	1⅜	..	..	..	Sunray Oil	1,975,876	$1	5c	5-1-40	.10	.25	.23	2¾	1¾	3¼	2
2¾	2	2⅜	2⅜	2⅜	Texon Oil & Land	936,024	$2	10c	3-29-40	.10	.49	.56	4	2⅝	5¼	3½
3⅜	2	2¼	2¼	2¼	Transwestern Oil Co.	750,000	$10	....	.....	....	—1.42	—.12	6	2½	7⅝	4¼
2⅛	ⅱ	1⅜	1¼	1¼	United Gas Corp.	7,818,959	$1	....	.....	....	—.55	—.51	3⅝	1½	5¼	2⅝

†Includes extras. —Deficit.

Personal Paragraphs

GILBERTO DELGADO, of the Republic of Colombia, South America, who was sent to the United States by his government to study petroleum engineering at the University of Oklahoma, at Norman, Okla., obtained his bachelor of science in petroleum engineering June 3 and has been engaged by Carter Oil Co. for training work. At present he is located at Fairfax.

LAWRENCE L. McDONALD, assistant production engineer, Pure Oil Co., eastern division, Olney, Ill., has been transferred to the Chicago engineering office of the company.

W. W. DOWNER, recent graduate of Texas Agricultural and Mechanical College, has been named junior industrial engineer of the Waco, Tex., district by Texas Cities Gas Co., a subsidiary of Lone Star Gas Co., Dallas, Tex.

CARL N. OSBORNE, vice president of M. A. Hanna Co., Cleveland, Ohio, is a newly elected director of Seaboard Oil Co. At a recent meeting of directors, the company's bylaws were amended to increase the number of directors to a maximum of 11.

WILLIAM PARKER, of the Apache Exploration Co., Houston, Tex., has gone to Falls City, Neb., with a new seismograph outfit which he recently constructed in the Houston office and which he will use in the search for oil in the Forest City basin.

JOHN S. LLOYD, of Bioren & Co., Philadelphia, Pa., for many years a director of the Bradford Oil Refining Co., Bradford, Pa., has been elected vice president in charge of financing operations of the Bradford plant, according to an announcement by DR. E. R. LEDERER, president.

M. A. ROBINSON, counsel for Olson Oil Co. and Olson Drilling Co., Tulsa, has returned with his family from New Mexico, where he spent his vacation after attending a company conference in Midland, Tex. He was a guest at the American Iron & Machine Works Co. lodge in New Mexico during part of his sojourn in that state.

FRANK A. SMITH has been promoted to the position as superintendent of the eastern division of Sohio Pipe Line Co. He makes his headquarters at Brooklyn, Ind.

ROSS LONG, of the production department for Sun Oil Co., at Corpus Christi, Tex., has been transferred to the company's offices at Dallas. He will be replaced by JAMES ROGERS who is being transferred from the Dallas office.

WINTHROP ROCKEFELLER, an employe in the foreign-trade department of Socony-Vacuum Oil Co., Inc., was one of the applicants for a month's military training at the Plattsburg, N. Y., camp of the Military Training Camps Association.

F. L. PROFFITT, formerly in Sinclair Prairie Oil Co.'s Tulsa office, has been transferred to the production department at Carmi, Ill.

C. P. (PAT) CARUTHERS, junior engineer formerly in Stanolind Oil & Gas Co.'s Fort Worth, Tex., division office, is temporarily stationed in the Rogers & Rogers field at Nocona, North Texas.

O. H. MOORE, assistant superintendent of the compressor department of Lone Star Gas Co., Dallas, Tex., recently was awarded a professional degree in mechanical engineering by Texas A. & M. College. The award was for the thesis on low-speed four-cycle gas engines.

D. A. YOUNG, formerly assistant superintendent of Sinclair Refining Co.'s Wellsville, N. Y., refinery, has been promoted to operating superintendent of the company's Houston, Tex., plant. W. W. JOHNSON, who was formerly general foreman of the Houston refinery, has been promoted to assistant superintendent of the Houston refinery.

J. A. LaFORTUNE, vice president of Warren Petroleum Co., and Mrs. LaFortune left this week for an extended vacation in British Columbia, Canada, and then by boat to Alaska. Before returning they will visit Yellowstone Park and other points in northwestern United States.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

J. Edgar Pew, of Tulsa, general manager for the Carter Oil Co. in Oklahoma, who has been ill, is now much improved.

John Ringling, of Chicago, made a trip in a private car to Ardmore, Okla., last week. He has increased his holdings in the Healdton field and will develop the property on a large scale.

The largest gas well to be completed in the eastern fields in several years was brought in near McKeesport, Pa., last week, and output was estimated at 75,000,000 cu. ft. daily. This makes it the biggest gas well ever drilled in Pennsylvania.

20 YEARS AGO

Article 27 of the Mexican Constitution, which nationalizes petroleum deposits, will be sustained theoretically, but all decrees issued by former President Carranza prejudicing prior rights of petroleum owners will be abrogated soon, President de la Huerta told foreign oil men.

Bolshevist Russia is clinging desperately to the oil fields of the Caucasus, and Britain will not obtain this great prize without a conflict, says a writer in Financial America.

10 YEARS AGO

Contracts were let by Phillips Petroleum Co. for construction of 800 miles of gasoline pipe line from its Borger, Tex., refinery to Kansas City, thence to St. Louis, the project to cost approximately $15,000,000. It will be the longest line ever built for transportation of gasoline.

A concerted movement to control production in California resulted this week in the state's production dropping below 600,000 bbl. daily for the first time since 1926. An abnormal drop in flush production in the Santa Fe Springs pool was a deciding factor in the curtailment work.

CLIFTON L. BELL, chief scout for Kingwood Oil Co., Effingham, Ill., has moved from Illinois to Mississippi. He is living at Laurel, Miss.

JAMES COLT, mayor of Bradford, Pa., and prominent in Pennsylvania oil circles, is a visitor in Tulsa this week. From Tulsa he will go to Houston, Tex., where he will attend the Elks' convention.

W. M. LOURCEY, in the land department of Gulf Oil Corp., Fort Worth, Tex., has returned from a 10-day fishing trip at Bimini in the Bahama Islands off the coast of Florida.

PATRICK H. MACK, 88-year-old oil man who was elected "Pioneer of Pioneers" at the recent International Petroleum Exposition in Tulsa, was reported recovering from an illness of several days at his home in Bradford, Pa.

C. P. ROGERS, formerly assistant chief deputy supervisor for the Texas Railroad Commission, Austin, has been appointed chief deputy supervisor. He succeeds STANFORD PAYNE, who resigned last week to assist Commissioner JERRY SADLER in his campaign for governor of Texas.

ERLE P. HALLIBURTON was re-elected president of the Halliburton Oil Well Cementing Co. at the directors' meeting in Duncan, Okla., last week. The only major change in the official staff of the company was the election of LOGAN D. CAMPBELL as secretary and treasurer to succeed HUGH LEONARD, who resigned because of ill health.

O. A. GRIFFEY, of Murray & Griffey, drilling contractors of Tulsa, has moved to Jackson to supervise drilling operations in Mississippi.

RICHARD E. KOCH, paleontologist for Royal Dutch-Shell, is temporarily stationed at Batavia-C, Java, in the Dutch East Indies.

JOE WILSON, vice president and director of Salt Dome Oil Corp., Houston, Tex., has resigned, and will operate as an independent with headquarters at Dallas, Tex.

WILLIAM HELIS, independent operator and producer in South Louisiana with headquarters at New Orleans, has returned from an extended trip to Greece.

H. O. JOHANSON, of M. H. Detrick Co., Tulsa, will address members of the Ark-La-Tex division, W.P.R.A. in El Dorado, Ark., July 12, on suspended walls in furnace design.

COL. E. V. D. SELDEN, retired veteran oil man of Oil City, Pa., served as an honorary pall bearer last week at the funeral services for former Gov. John S. Fisher at Indiana, Pa.

DR. ROBERT CALVERT, recognized authority in the field of lacquers and solvents, has taken office as president of the New York section of the American Chemical Society.

J. M. McLAUGHLIN has been appointed general manager of the Wadhams division of Socony-Vacuum Oil Co., Inc., to succeed AUBREY G. MAGUIRE, who has retired. Mr. McLaughlin was a director and vice president of the Wadhams Oil Co. for several years.

He Chose the Hard Way

George Miller has reached his present place of responsibility—vice president and marketing manager, and a director of Magnolia Petroleum Co.—on purpose, not by accident. He has won it by nearly 28 years of hard, constructive work

GEORGE MILLER

The chronicle of Mr. Miller's business experience picks up with his first job as bookkeeper for Swift & Co. at Waco, Tex., thence to Austin, Calvert, Houston, Corsicana and Fort Worth, his latter assignments being in the sales department. On November 11, 1912, he became associated with Magnolia Petroleum Co. as agent at Corsicana, Tex., then chief clerk to E. R. Brown, at that time vice president and general manager; next the jobbing department, sales division; manager of distribution department; acting marketing manager, to be made vice president and marketing manager on December 6, 1939.

Mr. Miller's advancement has not been spectacular nor meteoric, but constant, sustained, building securely as he advanced, having ready a secure foundation of experience when the chance came for his present place—but additional proof that the "Open Sesame" to real success still remains hard work, constructive thinking—content to pull himself up the long, hard, winding road, rather than depending upon "pull" to reach the position of responsibility he holds today.

ABB KENNEMORE, formerly with the Community Natural Gas Co.'s Cleburne, Tex., station, has been promoted to subdistrict manager for the company at Glen Rose, Tex.

H. L. HUNT, of Dallas, Tex., has been spending several days in Shreveport, La., where he plans to open land, geological and production offices.

J. I. RIDDLE, chief scout for Humble Oil & Refining Co., Houston, Tex., made a tour of inspection through the Southwest Texas district the past week.

WALLACE RILEY, drilling superintendent for Luling Oil & Gas Co., San Antonio, Tex., has been transferred to Mississippi where he is drilling a wildcat in Jones County.

E. E. PEVITO has been placed in charge of construction of the E. C. Johnston Refining Co. refinery in Vicksburg, Miss., and will superintend operations when the plant is placed on stream.

CHARLIE SNELSON, production superintendent for the Seaboard Oil Co., at Corpus Christi, Tex., has returned to his desk after a several weeks' visit to Indiana and Illinois, where his company is starting two new operations.

E. J. WEIKEL, formerly stationed at Lancaster, Tex., in the Ennis district of Community Natural Gas Co., has been promoted to junior industrial engineer for the Cleburne, Tex., district of the company. He succeeds PAUL K. GIFFIN, recently resigned to accept a position with the Southern Engineering & Pump Co. of Fort Worth Tex.

DONALD B. NEILL has been named general manager of the Independent Refiners Association of California, with offices in Los Angeles, Calif., succeeding WILLIAM S. SCULLY, who recently resigned to establish offices for the general and civil practice of law.

Shifts: EUGENE E. DAWSON, engineer, Franco-Arizona Oil Co., from Los Angeles, Calif., to Long Beach, Calif.; C. A. HILL, superintendent, Magnolia Petroleum Co., from Alice, Tex., to Wewoka, Okla.; H. E. GRANDBERRY, engineer, Magnolia Petroleum Co., from Corsicana, Tex., to Terrell, Tex.; EDMUND A. COBB, engineer, Sun Oil Co., from Dallas, Tex., to Beaumont, Tex.; C. L. WHITEMAN, engineer, Indian Refining Co., from Tallulah, La., to Greenwood, Miss.; E. I. HEAD, engineer, Gulf Oil Corp., from Grenada, Miss., to Clarksdale, Miss.; HAROLD DAVIS, purchasing agent, Richfield Oil Co., from Beverly Hills, Calif., to Los Angeles, Calif.; HOWARD B. GRAVES, JR., geologist, Texas Co., from Hobbs, N. M., to Midland, Tex.; J. O. GARRETT, engineer, Parker, Foran, Knode & Boatright, Houston, Tex., to Condor Petroleum Co., Abilene, Tex.; L. E. BRENKAMP, engineer, Atlantic Refining Co., from Longview, Tex., to Alice, Tex.; PAUL BUTHOD, engineer, Pure Oil Co., from Chicago, Ill., to Evanston, Ill.; R. W. OSTRANDER, manager, Standard Oil Co. of New Jersey, from New York City, to Stony Brook, N. Y.; GUY I. McCRACKEN, geologist, Gulf Oil Corp., from Enid, Okla., to Alva, Okla.

W. D. EVANS, JR., has been appointed deputy supervisor of the Texas Railroad Commission's Palestine, Tex., office to succeed MAJOR JONES, who resigned last week. Mr. Evans has been employed as inspector in the Palestine office for the past 6 years.

P. W. HENNESSY has been promoted to the position of vice president of Illinois Pipe Line Co. and has been transferred to the company's headquarters at Findlay, Ohio, from Casper, Wyo., where he has been located since 1920. During the past 13 years he has been superintendent of pipe lines in the Wyoming and Montana divisions.

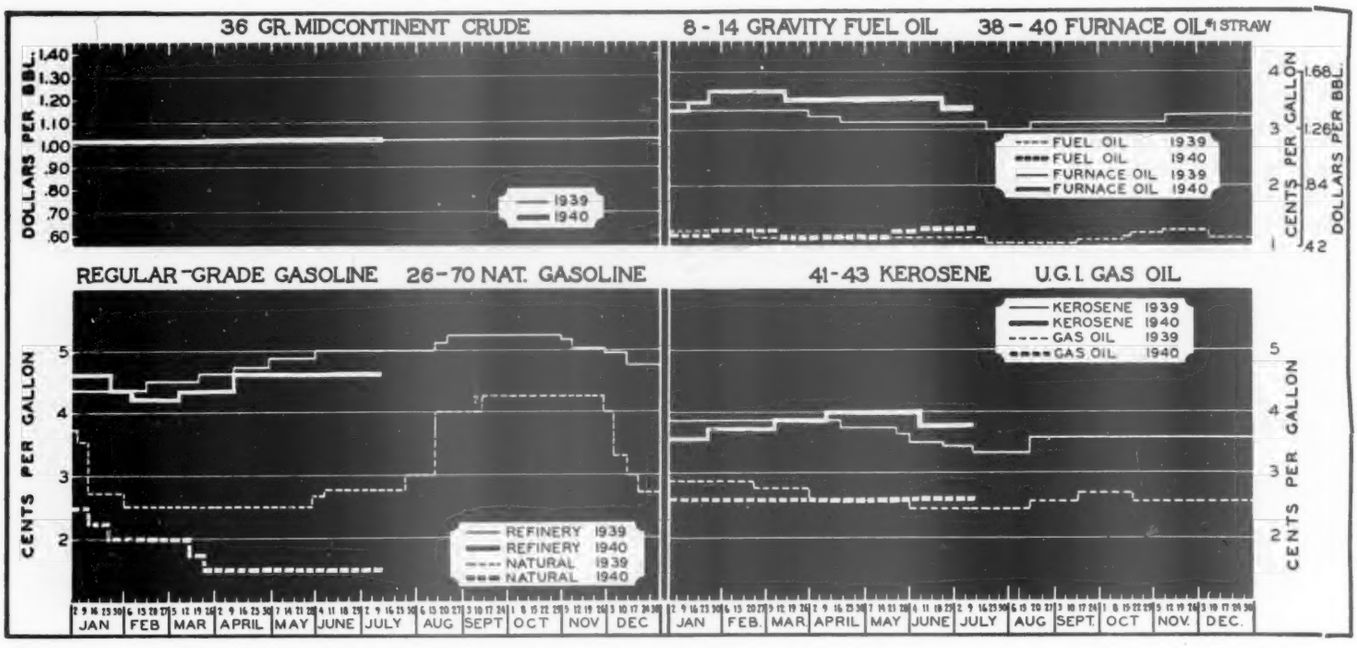
GEORGE A. ROUND, chief automotive engineer; W. G. GORDON, chief industrial lubricating engineer; B. C. VOSHELL, head of the technical division of the lubricating department, and JOHN BRIGGS, in charge of indirect marketing of Socony-Vacuum Oil Co., Inc., have been holding a series of meetings in Los Angeles and San Francisco, Calif., Portland, Ore., and Seattle, Wash., with General Petroleum Corp. employes outlining marketing moves to be made during the rest of 1940.

R. A. LUDLOW, director of the American Petroleum Institute lubrication committee, presented the first tangible results of studies on oil-change practices at a luncheon conference in New York, last week.

L. A. GIBBONS, for several years assistant general counsel of Union Oil Co. with offices in Los Angeles, Calif., has succeeded PAUL M. GREGG, general counsel who recently retired upon reaching the established retirement age.

SAMUEL N. (SANNY) MOYAR, veteran producer of the Venango County, Pennsylvania, fields, was honored at a family dinner marking his eightieth birthday anniversary on Wednesday, June 26. He began his career in the oil business during the excitement at Cherry Grove in Warren County and then followed the drilling business for several years at President and Petroleum Center.

W. J. BRUNDRED, president of the Brundred Oil Corp., has been named chairman of the Bureau of Aeronautics of the Oil City, Pa., Chamber of Commerce. Others named to the bureau include HENRY A. SPEIGELMAN, the Pennzoil Co.; DANIEL A. BREENE, Pennsylvania Grade Crude Oil Association; JOHN L. KING, the Pennzoil Co.; H. DOUGLAS BROWN, JR., Brundred Oil Corp., and W. A. MORCK, Morck Oil Corp.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Majors Buy a Little Motor Fuel From Group 3 Refiners; Lubricants Lower

By H. STANLEY NORMAN

DULLNESS of the Mid-Continent gasoline market continued this week. Refiners see no hope of dispelling the current lethargy until consumption absorbs material purchased during the last 2 weeks of June in anticipation of the increase in federal tax and July 4 holiday demand. Prices of the preceding week prevailed and a majority of the refiners anticipate that the low has been reached.

There is no feeling of optimism over an early rise of motor-fuel prices. In fact, a consensus indicates that the Mid-Continent, along with other districts, must be content with current netbacks for at least several more weeks. Domestic consumption is more than satisfactory and general conditions in the Mid-Continent itself are not too discouraging. However, there is sufficient motor fuel backed up on the seacoast because of a lack of exports to keep pressure on the market from the fringes of the territory.

Neutrals Drop 1 Cent

Oklahoma bright stocks and low-pour-test neutrals slumped a cent and a half cent, respectively, on July 2 and 3, in that order, in sympathy with lower lubricating-oil prices in the Pennsylvania district.

May reports show a decline in production of bright stocks in the Mid-Continent but the output was still more than sufficient to meet shipments. Production for May was reported at 151,986 bbl., which was 26,971 bbl. or 15.1 per cent under the output for April, but was 19,900 bbl. or 15.1 per cent higher than for the corresponding month last year.

Bright-stock shipments from the Group 3 refineries in May totaled 130,064 bbl., which was 50,124 bbl. or 27.8 per cent under April movement and 19,327 bbl. or 12.9 per cent less than a year ago.

Refined Oil Market Barometer

Limited purchases of gasoline in the Mid-Continent by major companies for northern movement appeared last week. Shipments against contracts and on spot order remained below normal for the season. Consumption has not yet caught up with heavy buying in the last half of June. Lubricating oils in Pennsylvania and the Mid-Continent suffered further declines.

MID-CONTINENT. Majors are making limited gasoline purchases. Heavy fuel oils are strong.

EAST COAST. Light fuel oils lost about 0.3 cent per gallon. Cylinder oils dropped 1 cent.

GULF COAST. Prices generally unchanged. Residual fuel is the strongest product in the list.

PENNSYLVANIA. Kerosene lost 0.25 cent and bright stocks are down approximately 1 cent.

CALIFORNIA. Gasoline consumption high and prices a little firmer. Residual fuel, diesel and gas oil soft.

CHICAGO. Gasoline demand at record levels. Heavy fuels firm. Light burning oils soft.

Production of viscous neutrals for May was 176,454 bbl., which was 44,550 bbl. or 20.2 per cent under April, but 9,332 bbl. or 5.6 per cent higher than a year ago. Shipments of viscous neutrals in May were 173,324 bbl., which was 18,552 bbl. or 9.7 per cent under April 1940, but 8,609 bbl. over May a year ago. Viscous neutral inventories in this district increased 3,130 bbl. in May.

Production of steam-refined stock increased 2,210 bbl. to 74,377 bbl. in May and shipments totaled 62,790 bbl., an increase of 3,605 bbl. or 6.1 per cent over the preceding month.

The natural-gasoline market was described as extremely dull. Prices are unchanged. Gasoline-plant operators in the Oklahoma-Kansas district are in much better position than producers in North Texas and the Panhandle because of freight differentials.

Wax Declines Quarter Cent

Group 3 wax prices were down a quarter of a cent to a range of 3½ to 3¾ cents per pound for white crude scale. Prices were lowered to meet competition from the Pennsylvania district where refiners are offering scale for as low as 3⅛ cents in certain directions.

The extent to which last-half-of-June gasoline buying in the Group 3 area drew on refiners' stocks is illustrated by inability of a large independent plant to load a tank wagon calling at its docks with its regular-grade motor fuel last week.

One report was heard last week that limited buying by major companies for northern movement had appeared in the Group 3 territory, the first instance of this healthier sign so far this summer.

Light fuel oils are following seasonal trends of limited movement and soft prices. Kerosene and tractor distillates appeared to be no exception. A swing through the harvest belt by one refiner's representative produced the impression that a large majority of new tractors are being operated on third-grade gasoline and some are even using premium motor fuel. The sales representative returned with the distinct impression that tractor consumption of kerosene and distillate fuels is a rapidly fading outlet for these products. A slight improvement was reported in tank-car buying of kerosene for northern movement, but prices of the past week were unchanged.

Heavy-fuel-oil prices and consumption continue as one of the bright spots in the Group 3 territory.

Light Fuel-Oil Prices Yield to Pressure on Eastern Coast

By J. P. O'DONNELL

NEW YORK, July 8.—Predictions that light-fuel-oil and kerosene prices were due for a downward revision were borne out last week when reductions in posted prices of all heating oils and light industrial oils were announced effective throughout the entire northeastern area. Reductions of ½ cent at Baltimore, Norfolk, Charleston and Wilmington and 0.3 cent in New York were announced by the Standard Oil Co. of New Jersey. Socony-Vacuum Oil Co. reduced kerosene tank-wagon prices 0.4 of a cent throughout western New York with the exception of Buffalo which remained unchanged and 0.3 cent in metropolitan and eastern New York and New England. Socony-Vacuum also reduced light fuel oil 0.3 cent throughout its territory.

The decline in light-fuel-oil prices was attributed to three factors: increasing inventories on the East Coast, the increase in the number of tankers available for coastwise service with consequent easing of tanker rates, and a softening of markets at the Gulf. Stocks of gas oil and distillates in the East Coast area at the end of the week preceding the price reductions totaled 10,401,000 bbl. against 9,526,000 bbl. a week earlier, a 10 per cent increase. Stocks of residual fuel oils, on the other hand, were virtually unchanged, totaling 8,842,000 bbl. on the last Saturday of June against 8,440,000 bbl. the week before. Good industrial demand with prospects of a further increase is maintaining the residual-fuel-oil market.

Charter rates for tankers in the Gulf Coast-North Atlantic service have declined materially and are now down almost to the level of the rates preceding the war. This is easily explained by the addition to coastwise service of the large number of tankers that had been in trans-Atlantic service during the greater part of the preceding 10 months. The magnitude of the change in tanker rates is seen in the fact that tankers for transporting gasoline from the Gulf may now be obtained at 35 cents per barrel, just about half of the rate charged during the past winter.

Rates for dirty bottoms have declined further than those for clean tankers due to the greater availability of the former. Current indications are that this position will not be changed immediately since inquiries are reported scarce. Last week it was reported that tankers for moving crude oil and fuel oil could be obtained at 25 cents per barrel, off 5 cents from a week earlier, and for kerosene, at 37 cents, off 8 cents from the rate of a week before.

High tanker rates were undoubtedly an important contributing factor to last winter's high fuel-oil prices. Because of the fact that present indications do not point to a repetition of this condition in the coming winter, it is considered that the spot market will be generally easier. This possibility has not offset the probable increase in consumption, and most consumers are seeking contract coverage for the winter of 1940-41.

There was no change in gasoline prices even though the week before the July 4 holiday witnessed the most substantial reduction of the year in stocks for the nation as a whole. It is significant to note that while stocks of finished and unfinished gasoline throughout the country declined more than 2,000,000 bbl., the decline in the East Coast area was much less than its proportionate share of the total. As a matter of fact, East Coast gasoline stocks are down only 3 per cent from the current year's high of 23,847,000 gal. on May 18.

Aggregate stocks of finished and unfinished motor fuel on the East Coast were 23,043,000 bbl. on June 29 against 23,206,000 bbl. on June 22. This was a decrease of only 163,000 bbl. or approximately 0.7 per cent. On the other hand the decrease for the country as a whole totaled 2,134,000 bbl. or better than 2 per cent, proportionately three times as great as the decline in the eastern area. The maintenance of high stocks in this area is viewed as the reason for the refusal of prices to obey normal season reactions.

Almost daily rains have had a deterring effect on motoring in the East this year, evidence of which is to be found in the attendance at the New York World's Fair. Attendance this year has averaged only about 80 per cent of that of the first year despite reduced admission rates. Rain ushered in the July 4 holiday but clearing skies later indicated the possibility of fair weather for a long week end which buoyed hopes of a record gasoline consumption.

Another factor that may have abetted last week's decline in gasoline stocks is the imposition of the new federal half-cent tax on gasoline. Prices to dealers were advanced accordingly on July 1. Dealers who wished to benefit could increase their purchases before the tax went into effect and by selling afterwards could either maintain sales at pretax levels until such purchases were disposed of or sell at the half-cent higher level and thereby enjoy an additional half-cent margin on their pretax purchases.

Both domestic and export prices on Pennsylvania lubricating oils dropped again last week. Bright stock, 25 pour, was reported down to 14 cents in the domestic market, off a full cent. Export prices were reported off more with bright stock quoted at 22 cents, off 3 cents; 630 flash, at 22½ cents, off 2 cents; 600 flash, at 19 cents, off 1 cent; 650 unfiltered, at 18 cents, off 1½ cents, and 600 unfiltered, at 17½ cents, off 1 cent. Both domestic and export neutral prices were off 1 cent.

The lubricating-oil market was described as "very sloppy" by one Pennsylvania refiner. Several

(Continued on Page 127)

Gulf Coast Markets

HOUSTON, Tex., July 9.—A decided easing up in the demand for Bunker C and other heavy fuel oils was evident on the Gulf Coast at the opening of the week. Although quotations still were being maintained firmly at a low of 80 cents for Bunker C in cargoes, there were few inquiries despite the spurt in buying during the past several weeks which resulted in tightening these products to a strong position. Material can be obtained without great difficulty. Supplies are in fair position in that there is no particular distress material but in the slackening of material they are easily able to fill any orders.

Further weakening was felt in kerosenes and other burning oils, as well as in the lighter fuels, although except for kerosenes, which slipped about an eighth cent, there was no material chance in quotations. Kerosenes were quoted around 4⅛ to 4¼ cents but offers as low as 4 cents were reported. Kerosenes, however, still are not overly plentiful as sources of supply on the Gulf Coast are limited but buyers would find no difficulty in filling their requirements.

Gasolines continued inactive with no evident change in quotations. These products apparently are devoid of any trend one way or the other for the present with quotations fairly well pegged at previous levels. The almost total absence of new business, however, continued to

(Continued on Page 127)

A.P.I. Weekly Refinery Statistics

Week Ended July 5, 1940

	Capacity reporting (per cent)	Total gasoline stocks (bbl.)	Residual fuel-oil stocks (bbl.)	Gas oil and distillate stocks (bbl.)	Daily crude runs (bbl.)
East Coast	100.0	22,286,000	9,654,000	10,521,000	532,000
Appalachian	91.0	3,451,000	480,000	351,000	111,000
Ind., Ill., and Ky.	90.2	15,825,000	3,366,000	4,060,000	612,000
Okla., Kans., and Mo.	76.9	6,894,000	2,096,000	1,282,000	267,000
Inland Texas	59.6	1,800,000	1,362,000	297,000	107,000
Texas Gulf	85.3	14,465,000	5,666,000	5,077,000	837,000
Louisiana Gulf	97.6	2,513,000	1,132,000	1,163,000	135,000
N. Louisiana and Ark.	51.5	532,000	487,000	271,000	48,000
Rocky Mountains	55.5	1,340,000	604,000	133,000	46,000
California	87.3	17,134,000	78,261,000	9,925,000	493,000
Total reported	85.3	86,240,000	103,108,000	33,080,000	3,188,000
Est. unreported	.....	7,035,000	2,235,000	1,650,000	387,000
*Est. total	.....	93,275,000	105,343,000	34,730,000	3,575,000
*Est. total prev. wk.	.....	95,142,000	104,486,000	33,590,000	3,625,000
*July 7, 1940	.....	79,893,000	113,084,000	32,435,000	3,420,000

*Bureau of Mines.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended June 29, 1940	262,059,000 barrels
Week ended June 22, 1940	260,891,000 barrels
Week ended July 1, 1939	271,567,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of July 9, 1940

Taxes

The gasoline quotations given in the following tables include the 1½-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline: Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Chicago, Ill.	15.6	13.6	4.5	10.0
Decatur	14.1	12.6	4.5	9.5
Joliet	15.6	14.1	4.5	10.0
Peoria	15.6	13.2	4.5	10.0
Quincy	15.4	13.9	4.5	9.8
Davenport, Ia.	15.6	14.1	4.5	‡10.0
Des Moines	15.4	12.9	4.5	‡9.8
Mason City	15.8	14.3	4.5	‡10.2
Duluth, Minn.	17.4	15.9	5.5	10.8
Mankato	17.0	15.5	5.5	9.0
Minneapolis	17.0	14.0	5.5	10.4
LaCrosse, Wis.	17.0	15.5	5.5	10.4
Green Bay	17.4	15.9	5.5	10.3
Milwaukee	16.8	15.3	5.5	10.2
Detroit, Mich.	14.1	12.6	4.5	7.6
Grand Rapids	13.7	11.9	4.5	9.0
Saginaw	14.7	13.2	4.5	9.3
Evansville, Ind.	17.1	15.6	5.5	†10.5
Indianapolis	17.3	14.8	5.5	†10.2
South Bend	17.3	15.8	5.5	†10.2
Fargo, N. D.	18.2	16.7	5.5	11.6
Huron, S. D.	17.5	16.0	5.5	10.9
Kans. City, Mo.*	14.9	13.4	4.5	8.0
St. Louis*	15.2	13.2	4.5	8.0
St. Joseph	14.9	12.5	4.5	7.9
Wichita, Kans.	13.8	12.1	4.5	7.0

*State tax 2 cents, 1-cent city tax, and 1½-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective April 18, 1940, f.o.b. Chicago, tank-wagon prices: Standard heater oil, 1-99 gal., 8.75 cents; 100-149 gal., 7.75 cents, 150 gal. and over, 7.25 cents. Stanolex fuel oil No. 1, 1-99 gal., 8.5 cents; 100-149 gal., 7.5 cents; 150-399 gal., 7 cents; 400 gal. and over, 6.5 cents. Stanolex furnace oil, 1-99 gal., 8.5 cents; 100-149 gal., 7.5 cents; 150-399 gal., 7 cents; 400 gal. and over, 6.5 cents. Stanolex fuel oil A, 1-399 gal., 5.5 cents; 400-799 gal., 4.5 cents; 800 gal. and over, 4.25 cents. Stanolex fuel oil B, 1-399 gal., 5.5 cents; 400-799 gal., 4.5 cents; 800 gal. and over, 4.25 cents. Stanolex Bunker C fuel oil, 1-999 gal., 4.25 cents; 1,000 gal. and over, 3.25 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Cons'r tank wag.	Dlvided dlr.	Incl. tax	Kero. tank wag.
Ohio points	16.0	15.0	5.5	*9.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Atl'tic City, N. J.	12.1	13.2	4.5	7.7
Newark	12.1	13.2	4.5	7.7
Annapolis, Md.	13.85	14.85	5.5	9.5
Baltimore	13.25	14.25	5.5	9.0
Cumberland	14.65	16.65	5.5	10.0
Wash'gton, D. C.	11.50	12.50	3.5	9.5
Danville, Va.	15.45	17.95	6.5	11.5
Norfolk	14.25	16.75	6.5	11.0
Petersburg	14.55	17.05	6.5	11.7
Richmond	14.55	17.05	6.5	11.0
Roanoke	15.75	18.25	6.5	11.0
Charles'n, W. Va.	15.05	17.55	6.5	12.6
Parkersburg	14.35	15.35	6.5	11.2
Wheeling	15.35	17.25	6.5	11.8
Charlotte, N. C.	17.40	17.50	7.5	11.8
Hickory	17.95	19.45	7.5	12.3
Mt. Airy	17.80	19.30	7.5	12.2
Raleigh	17.15	17.00	7.5	11.5
Salisbury	17.45	16.50	7.5	11.9
Charleston, S. C.	15.25	17.75	7.5	9.75
Columbia	16.10	18.60	7.5	11.5
Spartanburg	16.80	19.30	7.5	12.7

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery; 100,000 gal. per year, consumer tank-car price plus 0.5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less 0.5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less 0.5 cent per gallon. The above policy also applies in South Carolina, effective January 23, 1939.

Discounts for kerosene, 1 cent off tank-wagon price for 25 gal. or more under contract (contract not necessary in Baltimore), except no discount in New Jersey.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline: Cons'r tank wag.	Net dlr.	Incl. tax	Kero. tank wag.
Atlanta, Ga.	16.5	16.5	7.5	10.0
Augusta	17.5	17.5	7.5	10.0
Macon	15.0	15.0	7.5	10.0
Savannah	16.5	16.5	7.5	9.0
Birmingham, Ala.	18.0	18.0	8.5	9.0
Mobile	18.0	18.0	9.5	8.0
Montgomery	18.5	18.5	9.5	10.0
Jackson, Miss.	16.5	16.5	7.5	9.5
Vicksburg	16.5	16.5	7.5	9.0
Jacksonville, Fla.	16.0	16.0	8.5	8.0
Miami	16.0	16.0	8.5	8.0
Pensacola	18.0	18.0	9.5	8.5
*Tampa	20.5	17.5	8.5	8.0
Lexington, Ky.	16.0	16.0	6.5	10.0
Covington	15.0	15.0	6.5	9.5
Louisville	15.0	15.0	6.5	9.0
Paducah	15.5	15.5	6.5	9.0

Price basis to tank-wagon consumers, effective January 4, 1937, 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

*Temporary discounts to tank-wagon consumers in Tampa 3 cents per gallon below consumer tank-wagon price on Crown gasoline.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline: Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Albany	11.7	13.5	5.5	7.9
*Met. N. Y.: Manhat., Bronx, Queens, Brklyn., Staten Island	12.2	12.7	5.5	8.2
Buffalo	12.8	13.6	5.5	8.0
Rochester	13.3	14.2	5.5	8.5
Syracuse	12.7	13.9	5.5	8.7
Portland, Me.	11.7	13.8	5.5	8.0
Manchester, N.H.	12.4	12.5	5.5	8.8
Burlington	12.4	14.5	5.5	8.5
Boston, Mass.	10.8	11.8	4.5	8.3
Worcester	11.3	12.1	4.5	8.4
Hartford	11.0	12.0	4.5	8.1
New Haven	10.9	11.9	4.5	8.1
Providence, R. I.	10.7	12.2	4.5	8.3

*Does not include 2 per cent city sales tax, which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective February 15, 1939, the company changed its commercial consumer policy in New York and in New England points for tank-wagon delivery to the following: Annual purchases 10,000 gal. and under, tank-car price plus 2 cents per gallon; annual purchases 10,000 gal. up to 50,000 gal., tank-car prices plus 1.5 cents per gallon; annual purchases 50,000 to 200,000 gal., tank-car price plus 1 cent per gallon; annual purchases 200,000 gal. and over, tank-car price plus ½ cent per gallon. Private consumers pay undivided dealer price, plus 2 cents per gallon. Private consumers receiving full compartment deliveries of at least 200 gal. receive a discount of ½ cent per gallon.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline: Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Philadelphia, Pa.	12.5	14.0	5.5	10.5
Pittsburgh	13.5	15.0	5.5	10.5
Allentown	13.5	15.0	5.5	10.5
Erie	13.5	15.0	5.5	10.0
*Scranton	13.0	14.5	5.5	10.5
Altoona	13.5	15.5	5.5	10.5
Dover, Del.	...	14.5	5.5	10.5
Wilmington	...	14.0	5.5	10.0

Price basis to undivided dealers, dealer tank-wagon price less 0.5 cent per gallon.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

*Voluntary discount of 1 cent allowed to dealers only.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline: Tank truck	Serv. sta.	Incl. tax	Kero. tank wag.
San Francisco	16.5	17.5	4.5	11.5
Los Angeles	16.0	17.0	4.5	10.5
Fresno, Calif.	17.5	18.5	4.5	12.5
Phoenix, Ariz.	20.5	21.5	6.5	*17.5
Reno, Nev.	19.5	20.5	5.5	13.5
Portland, Ore.	19.0	20.0	6.5	13.5
Seattle, Wash.	19.0	20.0	6.5	13.5
Spokane	20.5	21.5	6.5	16.5
Tacoma	19.0	20.0	6.5	13.5

*Includes 5-cent state tax.

Discount to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck, and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Denver, Colo.	13.5	...	5.5	10.5
Grand Junction	18.0	...	5.5	12.5
Pueblo	15.5	...	5.5	9.0
Casper, Wyo.	17.0	...	5.5	11.5
Cheyenne	14.5	...	5.5	11.0
Billings, Mont.	18.5	...	6.5	12.0
Butte	15.5	...	6.5	13.0
Great Falls	18.5	...	6.5	12.0
Helena	16.5	...	6.5	12.5
Salt Lake, Utah	16.0	...	5.5	14.0
Boise, Idaho	20.6	...	6.5	16.0
Twin Falls	21.6	21.6	6.5	16.5
Albu'que, N. M.	15.0	...	6.5	9.5
Roswell	14.0	14.0	7.0	8.0
Santa Fe	16.0	...	7.0	10.0

*Includes city tax of 0.5 cent. †Includes state tax of 1 mill.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
New Orleans, La.	14.25	16.75	8.5	†11.0
Baton Rouge	15.25	17.75	8.5	‡10.5
Alexandria	15.25	17.75	8.5	‡10.5
Lafayette	15.50	18.00	8.5	‡10.0
Lake Charles	15.25	17.75	8.5	‡10.0
Shreveport	14.00	16.50	8.5	‡9.0
Knoxville, Tenn.	18.50	20.00	8.5	12.5
Memphis	16.50	18.00	8.5	11.0
Chattanooga	18.00	19.50	8.5	12.0
Nashville	17.50	16.90	8.5	11.5
Bristol	18.75	18.00	8.5	12.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

†Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline: Tank wag.	Incl. tax.	Kero. tank wag.
Texarkana, Ark.	13.5	5.5	7.0
Fort Smith	15.0	5.5	8.0
Little Rock	17.25	8.0	8.0
Muskogee, Okla.	13.0	5.5	7.0
Oklahoma City	11.5	5.5	6.5
Tulsa	12.5	5.5	6.0

Tank wagon represents price to consumers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Omaha	17.0	15.4	6.5	9.0
McCook	17.5	14.4	6.5	9.5
Norfolk	17.5	15.4	6.5	9.9
North Platte	17.8	15.0	6.5	10.2
Scottsbluff	18.4	15.5	6.5	10.5

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Texas

	Gasoline: Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Dallas, Tex.	11.5	15.5	5.5	6.0
Fort Worth	11.5	15.5	5.5	7.0
Houston	12.0	16.0	5.5	8.0
San Antonio	12.5	17.0	5.5	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Gasoline: Tank wag.	Incl. tax.	Kero. tank wag.
Halifax, N. S.	24.5	10.0	18.0
St. John, N. B.	24.5	10.0	18.0
Montreal, Que.	24.0	8.0	16.5
Toronto, Ont.	24.0	8.0	16.5
Hamilton, Ont.	24.0	8.0	16.5
Winnipeg, Man.	27.0	7.0	21.5
Brandon, Man.	28.0	7.0	22.5
Regina, Sask.	25.0	7.0	20.0
Saskatoon, Sask.	28.0	7.0	23.0
Edmonton, Alta.	25.9	7.0	20.0
Calgary, Alta.	23.0	7.0	18.0
Vancouver, B. C.	21.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Tank-Wagon Changes

Standard Oil Co. (Indiana) reduced the dealer gasoline price at Grand Rapids July 2, 0.3 of a cent.

Standard Oil Co. of New Jersey reduced the kerosene dealer tank-wagon price 0.3 of a cent per gallon on July 2 at Atlantic City, Newark and other New Jersey marketing points. Effective June 28 the company reduced dealer tank-wagon gasoline prices at Durham, Greensboro, High Point, and Raleigh, N. C., ranging from 0.45 to 1.75 cents per gallon. Effective June 29, the company lowered dealer tank-wagon gasoline prices by the same range at Albermarle, Charlotte, Greedmoor, and Salisbury, N. C. The reduction at Charlotte was 0.5; at Raleigh and Salisbury, 1 cent.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of July 9, 1940

The quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils. Octane ratings in Middle West, Mid-Continent, and Southwest are based on A.S.T.M. method of testing.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
72-74 octane (regular)	.04⅝	.04¾
63-66 octane	.04½	.04¼
60 octane and below	.03¾	.03⅞
60-62 400 grades:		
72-74 octane (regular)	.04⅝	.04¾
63-66 octane	.04½	.04¼
60 octane and below	.03¾	.03⅞

NORTH TEXAS—

U. S. Motor grades:		
72-74 octane (regular)	.04⅝	.04¾
63-66 octane	.04½	.04¼
60 octane and below	.03¾	.03⅞
60-62 400	.03¾	.03⅞

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
72-74 octane (regular)	.05½	.05⅝
63-66 octane	.04⅝	.04⅞
60 octane and below	.04¼	.04½

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
72-74 octane (regular)		.04¾
60 octane and below		.04

CHICAGO (Based on Group 3)—

U. S. Motor grades:-		
72-74 octane (regular)	.04¾	.04⅞
63-66 octane	.04⅜	.04½
60 octane and below	.04	.04⅛
60-62 400 grades:		
72-74 octane (regular)	.04¾	.04⅞
63-66 octane	.04⅜	.04½
60 octane and below	.04	.04⅛

PENNSYLVANIA (inland refineries)—

74-76 octane (regular)	.06
72-74 octane	.05¾

CALIFORNIA (domestic movement)—

58-60 400, 65 oct. and higher	.06¼	.07¼
54-58 U. S. Motor	.05	.06½

EAST COAST (domestic)—

U. S. Motor grades:	
*New York (Bayonne)	.06
Philadelphia	.06
Boston	.06¼
Baltimore	.06
Charleston, S. C.	.06½

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
72-74 octane	.04¼	.04⅜
70-72 octane (leaded)	.04⅛	.04¼
68-70 octane	.04	.04⅛
65-67 octane	.03⅞	.04

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.01½
Grade 18-55	.01¾	.01⅞

NORTH TEXAS—

Grade 26-70	.01¼
Grade 18-55	.01½

CALIFORNIA—

75-85 375-390	.05¼	.05¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70	.01⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110-flash, 540-550 e.p.	.03⅝	.03¾
41-43 gr., 300-320 i.b.p., 110-125 flash, 500-520 e.p.	.03¾	.03⅞
46-48 gr., 210-230 i.b.p., 480-max., e.p.	.03⅞	.04

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

42-44	.03⅞	.04
41-43	.03¾	.03⅞

NORTH TEXAS—

41-43	.03¾	.03⅞

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.03⅞	.04

ARKANSAS (Ark. and N. La. del.)—

41-43	.04¼

PENNSYLVANIA (inland refineries)—

47	.05⅛	.05¼
46	.05	.05⅛
45	.04⅞	.05

CHICAGO (Based on Group 3)—

42-44	.04	.04⅛
41-43	.03⅞	.04

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04½	.05½

NEW YORK (Bayonne, N. J.)—

41-43	.051	0.53

GULF COAST (domestic)*—

41-43	.04¼	.04⅜

*Barge price ¼ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03½	.03⅝
No. 1 prime white, 38-42	.03⅝	.03½
No. 1 straw, 38-40		.03⅝
No. 2 straw, 32-36	.03¼	.03⅜
No. 3 zero to 10, 28-32	.03⅛	.03¼

NORTH TEXAS—

No. 1 prime white, 38-42		.03½
No. 1 straw, 38-40		.03⅝

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	0.3	.03⅛

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36	.03¼	.03½

CHICAGO (Based on Group 3)—

Range oil	.03⅝	.03¾
No. 1 prime white, 38-40	.03½	.03⅝
No. 2 straw, 32-36	.03¼	.03⅜
No. 3, zero to 15, 28-32	.03⅛	.03¼

NEW YORK (Bayonne, N. J.)—

*No. 1	.051	.053
*No. 2	.044	.047
*No. 4	.044	.047

Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.72½	.77½
No. 6, 15 and above, 8-14	.50	.55

NORTH TEXAS—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.72½	.77½
No. 6, 15 and above, 8-14	.50	.55

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.65	.70

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 5, low pour point, 18-22	.75	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.45	.55

PENNSYLVANIA (inland refineries)—

36-40	.04

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.10	1.25
24 plus diesel, per bbl.	1.10	1.25
24 plus diesel (bunkers)	1.20	1.35
12-16 (bunkers at tidewater)	.65	.75
10-16 (cargo lots)	.65	.75
12-17 (tank cars)	.60	.75
10-17 (high sulfur)	.50	.65
San Joaquin Valley:		
10-18 (tank cars)	.50	.70
24 plus diesel, per bbl.	1.10	1.25
San Francisco:		
24 plus diesel, per bbl.	1.35	1.40
24 plus diesel (bunkers)	1.40	1.50
10-16 (bunkers)	.80	.85

GULF COAST—

No. 2 fuel	.03¼	.03½
43-47 diesel	.03½	.03¾
48-52 diesel	.03¾	.04
53-57 diesel		.04
58-and-above diesel	.04	.04¼
Diesel bunkers		1.50
Bunker C (bulk cargoes)	.80	.82½
Bunker C (bunkers)		.80

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil	.04½	.05
28-30 diesel (lighterage 6¼c per bbl.)		1.95
28-30 diesel (tank cars)	.04½	.05
Bunker C (to ocean-going ships in N. Y. Harbor)		1.35
Industrial fuel (tank cars)	.035	.038

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

200-210 D, 10-25	.19
150-160 D, 0-10	.15
150-160 D, 10-25	.14½
100-110 D, 0-10	.14½
100-110 D, 10-25	.14
Steam refined:	
600 dark green (untreated)	.07

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point	.16½	.17½
15 pour point	.15½	.16½
25 pour point	.14	.16
Steam refined:		
600	.09	.10
650	.11	.12
800 flash	.12	.13
630 flash	.14	.15

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.08
180-3		.09
200-3		.09½
250-3		.10½
280-3		.11
280-4		.10½
300-3½		.11½
350-3½		.12
400-3½		.12½
500-3½		.13½
600-3½		.14½
100-2½ paraffin oil, 10-25		.05¾
10-25 pour point:		
200-3		.09
250-3		.10
280-3		.10½
280-4		.10

GULF COAST—

Pale oils:		
100-3	.05½	.05¾
200-3	.07¼	.07½
300-3	.07¾	.08
500-3½	.08½	.09
750-3½	.09	.09½
1,200-3½	.09¾	.10
2,000-4	.10	.10¼
3,000-4	.12¼	.12½
Red oils:		
200-5-6	.07	.07⅛
300-5-6	.07½	.07⅝
500-5-6	.08¼	.08⅝
750	.08¾	.09¼
1,200-5-6	.09⅜	.09⅝

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pour point		.22½
10 pour point		.21½
15 pour point		.20½
25 pour point	.19	.20
200 vis. at 70° F., 3 color:		
Zero pour point		.24½
10 pour point		.23½
15 pour point		.22½
25 pour point	.21	.22

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.03½	.03¾

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	.03	.03½
124-126 (A.m.p.) w.c. scale	.03	.03½

NEW YORK—

Wax in bags fully refined:		
125-127 (A.m.p.) wax	.056	.060
128-130 (A.m.p.) wax	.057	.060
130-132 (A.m.p.) wax	.058	.062
133-135 (A.m.p.) wax	.062	.065
135-137 (A.m.p.) wax	.064	.067
Crude scale:		
124-126 (A.m.p.) w.s.	.03¼	.03⅜
124-126 (A.m.p.) y.s.	.03¼	.03⅜
Petrolatum in barrels, carload lots:		
Dark green		.02625
Amber		.02875
Extra amber		.03000
Lily white		.05125
Snow white		.06125
Cream		.04125

Export Prices

GASOLINE

GULF COAST—

U. S. Motor		.04
60-62 400	.04	.04¾
61-63 390	.04	.04¾
64-66 375	.04	.04⅞

LOS ANGELES—

U. S. Motor grades:		
Above 69 octane	.06¼	.06½
65-69 octane	.05⅝	.06⅛
60-65 octane	.05¼	.05⅝

KEROSENE

GULF COAST—

41-43 water white	.04	.04½

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s in bbl.)—

Cylinder stocks:		
600 S.R. unfiltered	.17½	.18
630 S.R. unfiltered	.18	.19
600 flash, S.R.	.19	.20
630 flash, S.R.	.22½	.23½
Bright stock:		
Light, 25 pour point	.25	.25½

NEUTRAL OIL

200-3 color	.27	.28
150-3 color	.26	.27½

PARAFFIN WAX

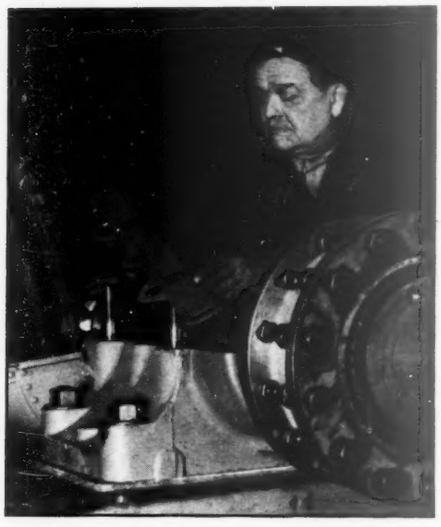
NEW YORK (prices per pound)—

123-125 A.m.p.		.05⅞
125-127 A.m.p.		.06
128-130 A.m.p.		.06¼
133-135 A.m.p.		.07
135-137 A.m.p.		.07¼
Crude scale:		
124-126 w.s.	.03¼	.03⅜
124-126 y.s.	.03¼	.03⅜

EQUIPMENT PROGRESS...

Assembly Adjustment Shim Is Used Also in Bearing Service Takeup

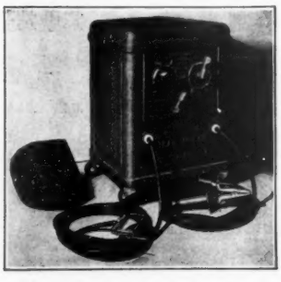
Assembly adjustment of crankshaft and pinion-shaft bearings of gear-driven reciprocating pumps at the Prescott Co. plant in Menominee, Mich., is made



with laminated shims, the solid shims that simply peel for adjustment. In assembly and service, the same shims continuously provide the means for quick and uniform takeup for wear, keep shafts in correct alignment and help insure smoothness of gear action.

Bear's Arcmaster Welder Provides Even Current Flow to Electrode

The a.c. Arcmaster welder, announced by Bear Manufacturing Co., features a unique multiple-coil transformer design that is said to assure an even flow of current to the electrode, an improved safety construction that provides protection of the operator.



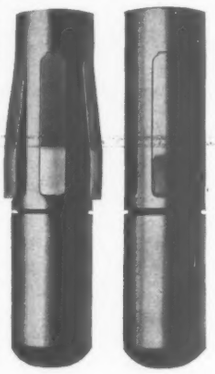
It is stated by the manufacturer that the multiple-coil transformer construction, with reactance control, not only levels the peaks and valleys of power variation to provide a smooth flow of current to the electrode, but makes possible a uniform and constant welding voltage with calibrated amperage from lowest to highest output. Thus, an operator can instantly and easily strike and hold a steady arc with any size rod.

Operating safety is assured as there is no possible connection between the input and the output. Either ground or welding leads can be connected with any of the input wires without completing an electrical circuit. A circuit on the output cannot be completed until actual welding takes place.

Built for heavy-duty operating conditions, this all-metal unit has transformer laminations of silicon steel and oversize core and wire to withstand heat created under constant usage, prevent insulation breakdown and avoid complete burnouts.

Regan Product Centers Casing and Keeps Cement From Channeling

To center casing definitely and prevent channeling of cement, a device has been developed by Regan Forge & Engineering Co., San Pedro, Calif. It is a casing centralizer, which eliminates weak cement walls and insures a positive water shutoff. Casing leaning against the formation causes a shell-thin wall to be formed by the cement. By use of this centralizing device the casing assumes a concentric position so that the cement wall is even all around.



This centralizer, which can be used with the regular cementing procedure, consists of a steel body in which six longitudinal slots receive six expandable foot members of drillable alloy metal. This body screws into the bottom of the casing which is to be cemented. A casing shoe is screwed to the bottom. When the cement plug is run down through the centralizer body it expands the foot members. The plug is tapered at its lower end in a manner calculated to expand the feet gradually. The upper end of the plug is equipped with a diaphragm which is ruptured by the pressure of the cement after landing at the bottom of the centralizer, to permit flow of cement through the plug. After the plug expands the feet to engage the side wall, it seats itself in the shoe, after which the usual cementing procedure is carried out.

Baash-Ross Unitized Rotary Slips Combine Lightness and Strength

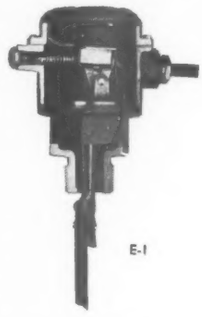
Designed to combine extreme lightness and full strength with a large safety factor in suspending the longest strings of drill pipe, a new unitized type of rotary slips, the Type C-U, is being introduced by Baash-Ross Tool Co., 5512 Boyle Avenue, Los Angeles, Calif. The C-U consists of three heat-treated, alloy-steel body sections joined by means of a flexible hinge and equipped with long, readily replaceable liners, and three solid-steel safety loop handles.

The three body sections are joined to insure that all will set at the same level in the master bushings when supporting the drill-pipe load, in order to eliminate any tendency to crush the pipe. The flexible hinges permit the body sections to become automatically adjusted laterally and vertically as the pipe load is brought to rest, so that the pipe is gripped evenly by the liners.

Increased operating convenience is said to result from the lightness in weight obtained by coring all excess metal from the body sections and by the correct balance resulting from the location at which the handles are attached to the body sections.

McDonnell Flow Switch Has Almost Unlimited Range of Application

A simple flow switch announced by McDonnell & Miller, Wrigley Building, Chicago, manufacturer of boiler-water-level controls, employs a positive mechanical action to start a pump, an alarm, or any electrical device when flow through a pipe starts or stops.

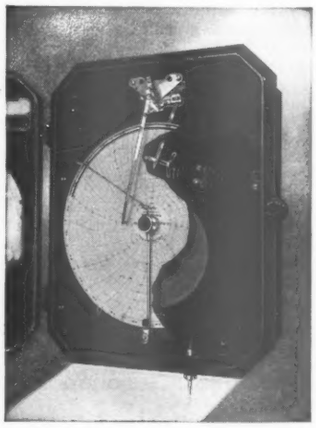


The No. E-1 McDonnell flow switch consists essentially of a long flexible paddle which is extended into the pipe. When this paddle is forced back by the flow in the pipe it closes an electric circuit and thus starts whatever machinery or valves the switch controls. When flow through the pipe stops, the paddle returns to normal position, breaking the electric circuit. Reverse-acting switches are available too; these break the electric circuit when flow starts and complete it when flow stops.

The paddle itself is flexible, will pass stones and debris, and will not interfere with high-rate flows. It can be cut to any length to fit any size of pipe.

Companion Devices for Redesigned Line Are Introduced by Taylor

To provide truly companion recording instruments for a redesigned line of Fulscope controllers, the Taylor Instrument Cos., Rochester, N. Y., have released their new recorders for temperature, humidity, pressure, load, rate of flow, liquid level, and receivers for penumatic-transmission systems. Exclusive of the controller mechanism, the recorders and recording controllers are identical. Even the cases are drilled and tapped to receive any of the five standard Fulscope control mechanisms should it be desirable to add it at a later date.

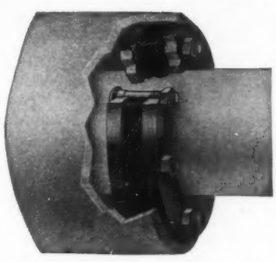


The new universal case is for face and flush mounting. It can be mounted on panels side by side with the previous Taylor recorders because the same dignified lines and proportions are retained, yet more efficiently utilized. Standard-case finish is instrument-black enamel, or white if specified. Dust and moisture are sealed from the case by Neoprene door gaskets and a positive bayonet-action latch.

The time previously required for changing charts is cut in two by a uniquely designed mechanism that combines the chart-locking device and pen lifter. The chart is easily removed and replaced with one hand. A die-cast aluminum chart plate gives a rigid surface for pencil notations on the chart and for carrying the chart clamp and pen lifter.

Quick Closure Between Casing and Pipe Effected by Dresser Device

An answer to the problem of sealing the ends of a protective casing through which a pipe line runs is offered by the new Dresser casing bushing, made by the Dresser Manufacturing Co., of Bradford, Pa. Consisting of two halved steel rings with a rubber-compound gasket bolted between them, this bushing is said to be easily assembled around pipe and slipped into ends of casing to provide a simple, quick closure. The working principle is described as simple and effective. As bolts are tightened, the gasket expands outwardly against the inside of the casing and inwardly against the outside of the pipe, making a tight seal against both. Casing bushings are recommended for any line where protective casing is used, as under a railroad track, highway, embankment; or across a swamp, canal, irrigation ditch, or stream.



Style 83 casing bushing is said to seal out dirt, debris, weeds, small animals, and corrosive water from the inside of the casing, thereby prolonging pipe life because the pipe is kept dry and clean. It "floats" pipe line in the casing. Vibration and shock from passing trains and traffic (ordinarily relayed to pipe) are absorbed by the resilient rubber gasket. It centers the pipe line in the casing. The pipe does not rest on the bottom of the casing where corrosion may develop and coating be scraped off. Quickly and easily installed by one man using only a wrench, the casing bushing is said to eliminate crew back tracking, open trench, and costly sealing methods and materials (cement, gunny sacks, wood blocks, sandbags, etc.).

TRADE LITERATURE

AMERICAN TOOL & MACHINE CO., Hyde Park, Boston, Mass.—Bulletin, "Centrifugal Force Brings Speed to Scores of Chemical Process Jobs," giving details on standard and alternative parts of A.T.&M. centrifugals.

THE SKYBRITE CO., 3125 Perkins Avenue, Cleveland, Ohio.—Catalog VIII, "Better Paints and Materials for Better Maintenance."

WALWORTH CO., 60 East Forty-second Street, New York.—April-May issue of Walworth Today, featuring article on a new method of building high-pressure gas holders.

BAKER OIL TOOLS, INC., P. O. Box 127, Vernon Station, Los Angeles, Calif.—Bulletin, Baker rotary wall scraper.

THE STAR DRILLING MACHINE CO., Akron, Ohio.—Bulletin 82, on new Speed Star drilling machine.

INTERNATIONAL NICKEL CO., INC., 67 Wall Street, New York.—Current issue Nickel Cast Iron News, including testimonials from oil refineries.

CHICAGO METAL HOSE CORP., Maywood, Ill.—Catalog G-21, flexible metal hose, flexible connections, stainless-steel bellows, diesel exhaust hose, oil hose, etc.

FOOTE BROS. GEAR & MACHINE CORP., 5301 South Western Boulevard, Chicago.—Bulletin 104, single-type helical speed increasers and speed reducers; Bulletin 1701, "Five Point" Deephard steel products; IXL gear calculation wall chart, giving formulas for calculating the strength and power-transmitting capacity of all types of gears.

ROLLWAY BEARING CO., INC., Syracuse, N. Y.—Catalog 540-C, Rollway steel-cage type roller bearings, inch and metric series; contains dimensions and load rating tables.

BONNEY FORGE & TOOL WORKS, Allentown, Pa.—Bulletin WT29 on Bonney Weldolets, Thredolets, and socket-end Weldolets—welding outlets for piping.

CATERPILLAR TRACTOR CO., Peoria, Ill.—Illustrated booklet, "From Job to Job in the World's Oil Fields."

THE B. F. GOODRICH CO., Akron, Ohio.—1940 Goodrich Red Book, products for the tire, battery, and accessory dealer.

ELASTIC STOP NUT CORP., 1001 Newark Avenue, Elizabeth, N. J.—58-page loose-leaf booklet, explaining advantages of elastic stop nuts.

AIR REDUCTION, 60 East Forty-second Street, New York.—Booklet ADG-1073, "Flame Cleaning and Dehydrating Iron and Steel."

AXELSON MANUFACTURING CO., Los Angeles, Calif., and St. Louis, Mo.—16-page booklet, "Axelson Has What It Takes," presenting views of company's big plant, where pumps and sucker rods are made.

GENERAL ELECTRIC CO. (Automotive Products), Bridgeport, Conn.—Descriptive sheet, General Electric copper oxide rectifier for cathodic protection of pipe lines.

GENERAL REFRACTORIES CO., Philadelphia, Pa.—Bulletin 209, Sillimanite refractories, brick, cement, and plastic.

INTERNATIONAL HARVESTER CO., INC., 180 North Michigan Avenue, Chicago.—Catalog A-420-DD, International trucks, tractors, and power units for the oil fields.

TULSA SHOCK ABSORBER, INC., 714 South Boston Avenue, Tulsa, Okla.—Bulletin, Tulsa shock absorbers for reducing rod breakage, minimizing down time, and damage to front equipment.

CARBIDE & CHEMICALS CORP., 30 East Forty-second Street, New York.—20-page booklet, "Correcting Leakage in Gas-Distribution Systems With Carboseal Antileak."

INTERNATIONAL HARVESTER CO., INC., 180 North Michigan Avenue, Chicago.—16-page bulletin on International power units.

INDUSTRIAL GLOVES CO., 900 Garfield Boulevard, Danville, Ill.—Catalog of safety clothing, including finger guards, hand pads, arm protectors, etc.

Addition to Its Series of Job-Rated Trucks Announced by Dodge

Introduction of a 2-ton cab-over-engine model as an addition to its line of job-rated trucks is announced by the Dodge Division, Chrysler Corp. This new truck has

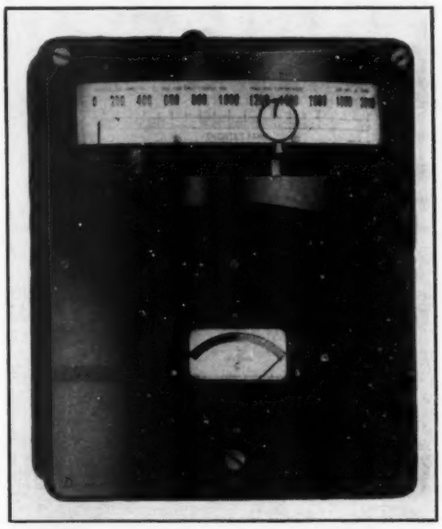
a large well-ventilated and thoroughly insulated cab. From a vantage point well forward and upward, the driver has safety vision day and night. Carefully designed step arrangement and full-width doors make the cab easy to get in or out of on either side. The gear-shift lever, located in standard or "normal" position, contributes to driver comfort.

Easy maneuverability with heavy loads in congested traffic or obstructed loading spaces is an outstanding feature contributing to the rapidly increasing popularity of the cab-over-engine type of truck.

The new 2-ton is a companion to the Dodge job-rated 1½-ton cab-over-engine truck now widely used in many lines of business. It is modernly streamlined for striking appearance. Its L-head Dodge truck engine with 241.5 cu. in. piston displacement and a 6.5 to 1 compression ratio develops 99 hp. at 3,000 r.p.m. and a maximum of 188 ft.-lb. torque at 1,200 r.p.m.

Moving Parts of Control Circuit Eliminated in New Controller

Moving parts in the control circuit—such as motors, depressor bars, toggle switches, and open contacts—are eliminated in a new electronic pyrometer control-



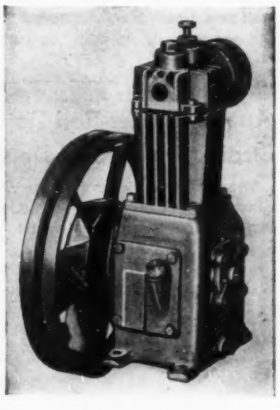
ler developed by the Bristol Co., Waterbury, Conn. The pointer of the Weston millivoltmeter movement is not engaged or retarded at any point within its normal operating range, thereby leaving it free to indicate continuously the temperature under control. This measuring unit is equipped with a cold-end compensator, to insure high accuracy.

Control is accomplished by means of a new electronic circuit, using a single high-output vacuum tube of the all-metal type. This tube has a useful life of several years. A milliammeter on the front of the instrument indicates the condition of the control circuit at all times.

Due to the Bristol's Millivac relay, the controller is extremely sensitive to changes in temperature at the thermocouple. The entire operating mechanism of this relay is totally enclosed in a vacuum. Bulletin 544 may be obtained upon request.

Line of Smaller Air Compressors Is Put on Market by Sullivan

Supplementing its line of portable and stationary air compressors, the Sullivan Machinery Co., Michigan City, Ind., is offering a group of compressor units in smaller sizes. The new Type Q line is applicable for industrial, garage, and diesel-starting service. The units are air-cooled—single and two-stage—and range in capacity from 2.8 to 45.7 c.f.m., ½ to 10 hp., with operating pressures (continuous) 100 to 200 lb. and (intermittent) 150 to 500 lb. The smallest unit is 10⅛ by 14 by 18 in. high and the largest 20⅝ by 19½ by 25⅞ in.

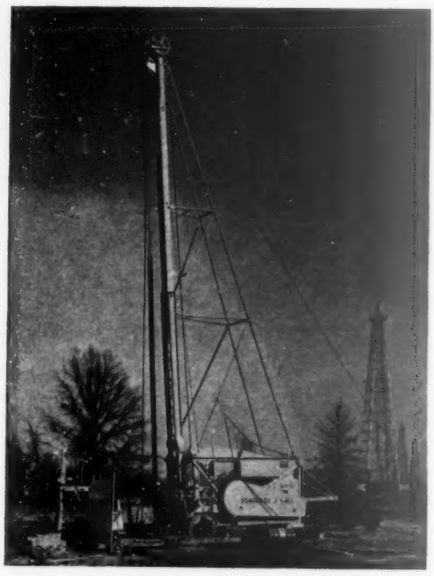


These Q compressors have cushioned air valves, balanced crankshaft, taper-roller main bearings, Lynite connecting rods, semisteel pistons, positive lubrication, copper intercooler, chrome-nickel cylinders and dust-proof crankcase. Automatic starting can be furnished.

Units are available bare, base-mounted or tank-mounted, for V-belt drive from motor or air-cooled gasoline engine. Units for diesel starting may have combination motor and gasoline drive, so arranged that the belt can be shifted readily to the gasoline engine in case of current failure.

Big-Capacity Spudder Suitable for Fast Highway Transportation

The 36-L spudder announced by Bucyrus-Erie Co., South Milwaukee, Wis., was designed to provide the



largest-capacity modern spudder suitable for high-speed highway transportation.

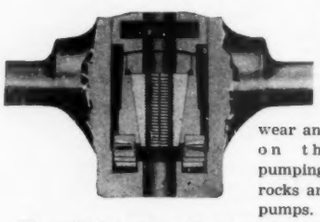
According to the manufacturer the 36-L handles drilling tools equal to one-fifth the total weight of the complete machine; over 4,500 lb. of tools in shallow holes or combined weight of 6,000 to 7,000 lb. of tools and cable in deeper holes. It has ample power to pull 3,500 lb. of tools from a 3,000-ft. hole in 8 minutes; average hoisting speed is 375 ft. per minute in high gear; low gear makes available drilling-line pulls up to 27,000 lb. at reduced hoisting speeds.

The rig carries the usual three reels of a big spudder, the bull reel (without dividers) carrying to 9,400 ft. of ¾-in. line, the sand reel 7,800 ft. of ½-in., the calf reel to 530 ft. of ⅞-in. There are two speeds forward plus reverse on all drums, and all are free-wheeling and operated by friction-clutch controls. Both bull reel and sand reel carry dual oversize brakes with equalizers. One brake is placed at each end of the drum to give balanced stresses and improved cooling under severe braking conditions. The bull reel and calf reel are gear driven, sand reel is chain driven.

This new rig is powered with a gasoline engine developing 86 hp. at 1,400 r.p.m. or 112 hp. at 2,200 r.p.m., and can be equipped with water-cooled manifold. A natural-gas engine using gas or gasoline, as well as a diesel, is also available. Three types of mounting are offered; on skids, on rubber-tired trailer, and on steel wheels.

Apeco Sucker-Rod Rotator Lessens Strain, Wear, and Deterioration

The Apeco sucker-rod rotator, introduced by Advanced Petroleum Equipment Corp., M and M. Building, Houston, Tex., is designed to allow the rod string of a pumping well to "free wheel," thereby removing strain and minimizing wear and deterioration on the subsurface pumping equipment. It rocks and rotates as it pumps.



The rotating and rocker elements combine to eliminate strain on polished rod, stuffing box and sucker rods by allowing free movement in all directions. This freedom of movement compensates for stress or strain caused by the polished rod not traveling in a perfectly straight position. This is particularly important in the case of crooked holes, where extreme strain has resulted in whipping of the complete rod string. The rotating feature has minimized fatigue in rods, and has practically eliminated backing off and parting of the rod string according to the manufacturer.

It is said to have delayed the formation of paraffin to the extent of requiring the running of a paraffin scraper once a year instead of every 90 days, or oftener. The rotating element, actuated from the walking beam, operates simply. It is adaptable to all pumping wells.

Asbestos and Neoprene Properties Combined in New-Type Gasket

A new kind of gasket which combines the desirable properties of asbestos and neoprene has been introduced by Victor Manufacturing & Gasket Co., Detroit, Mich. The gaskets are not supplied in sheet form. They first are blanked from asbestos sheet material. Then they are coated with a neoprene cement developed especially to increase resistance to the passage of gases and liquids.

Two types of asbestos-neoprene gaskets manufactured by this process are now available. As originally made, the sheet has considerable compressibility, and gaskets made from it are adapted to joints where relatively light flange pressure is applied, as between light metal stampings. Gaskets of this type are applied where heretofore treated paper, cork, or similar materials were used. Their particular advantages are stability of dimensions and resistance to the effects of temperatures that cause other materials to develop leaks.

By compressing the asbestos-neoprene combination a second type of material is obtained. From it gaskets are made for applications where heavier flange pressures may be applied, as between machined surfaces. Such gaskets have been installed successfully in places where higher-cost gaskets formerly were used, and also in place of treated paper.

In laboratory tests sample gaskets immersed in extreme-pressure lubricants (end point No. 90) for 500 hours at 200° F. showed no disintegration, blistering, dimensional changes, loss in flexibility, or delamination. At 300° F. the asbestos-neoprene combination retained its gasketing properties after 300 hours. Using the highly destructive type of prediluted oil these gaskets are reported to have been in excellent condition after 250 hours at 200° F. and 100 hours at 300° F.

Mowrey Rod-Line Support Reduces Friction and Increases Stroke

L. D. Mowrey & Son, Box 1293, Wichita Falls, Tex., announce the Mowrey geared rod-line support, which according to the manufacturer, reduces friction on the

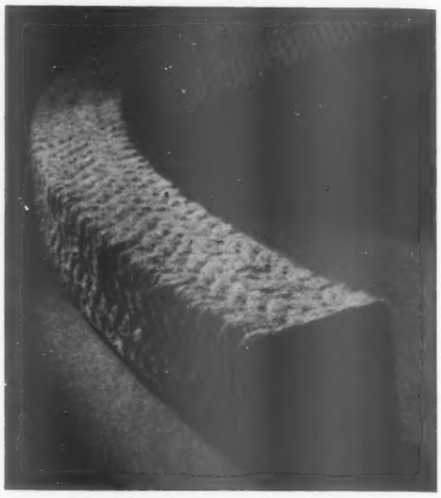
rod line, increases well stroke and reduces power costs and rod-line breakage.

Outstanding features of the Mowrey support are: (1) Combination of geared and plane track which gives a greatly enlarged bearing surface; (2) rolls under all conditions, as gears positively prevent pinion wear of track at any one given point; (3) requires no lubrication.

Two sizes are available. The model illustrated will handle a 36-in. stroke and the heavy-duty model is designed to handle a 52-in. stroke.

Garlock Lattice-Braid Packing Does Not Wear Into Loose Strands

The patented Lattice-Braid packing, introduced by the Garlock Packing Co., Palmyra, N. Y., is not merely a modification of an older type, but is distinctly differ-



ent. Every braiding strand passes through the body of the packing at an angle of approximately 45°. This makes a completely unified structure. It is braided internally as well as externally. There are no strands which are not part of, and integral with, the entire body of the packing. Structurally every braiding strand contributes to the strength of the entire mass.

No matter how the packing becomes worn, it will not disintegrate into loose strands or separate parts. The structural design holds the strands into a single unit even when the material is worn to a point far beyond the usual serviceable limits.

The braided structure imparts to these packings a high degree of flexibility. Lattice-Braid packings of large sizes can be formed into rings around rods of small diameter without distortion of the packing. This is due to the fact that every braiding strand passes diagonally through the packing. When the packing is formed into a ring these diagonally braided strands readily compress to allow for the shortening of the face forming the inside diameter of the ring without distorting the cross-sectional shape or size of the packing and, in like manner, the strands along the outside diameter of the ring readily adjust themselves to this elongated face.

BUSINESS NOTES

The Norton Co. board of directors has announced the election of Harry K. Clark to the office of vice president and general manager, and Andrew B. Holstrom to the office of vice president and works manager.

Martin J. Conway, who has been fuel engineer for Lukens Steel Co., Coatesville, Pa., since August 1925, has been transferred to the sales department of the company as special engineer for the petroleum industry. Mr. Conway has been in charge of producer gas plants, boiler-plant operation, furnace and fuel efficiency, distribution, and engineering work of special interest dealing with both fuel and metallurgy.

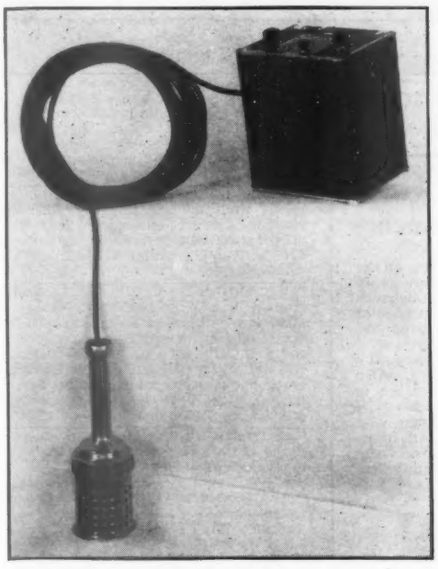
A. R. Flournoy of Los Angeles, Calif., has been appointed representative of the Young Radiator Co., Racine, Wis., in that area, specializing in the sales of jacket-water coolers, heat exchangers, oil coolers, and other products of the company's contract products division.

Edgar M. Queeny, president of Monsanto Chemical Co., effective July 1 and until the November election, will serve his company only half time and will receive only half pay, so that he can devote the balance of his time and energy in behalf of the presidential candidacy of Wendell L. Willkie.

The Vapor Recovery Systems Co., manufacturer of Varec approved tank equipment, has opened an office at 533 Mayo Building, Tulsa, with Alfred Kent in charge.

Davis Indicator Warns of Dangerous Conditions in Gas-Freed Tanks

Davis Emergency Equipment Co., 55 Van Dam Street, New York, has developed an indicator to detect a hazardous condition in a tank, which has been gas-



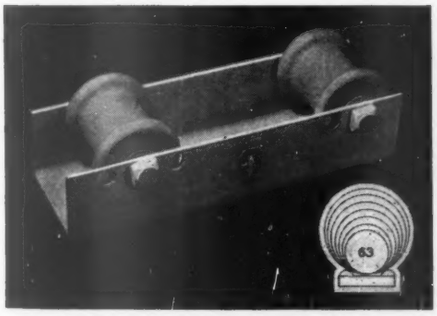
freed, but where the heat of the sun or from a torch may drive vapors out of the scale. The device may be used also in pits, where repair work on pipe lines is being carried on, to detect accumulation of gas which may become dangerous.

The indicator case is placed in a gas-free area where the needle of the meter may be watched to note an increase in reading toward the lower explosive limit. The indicator head, containing the active and comparison filament, is attached to a 30-ft. cable. It is placed in the tank back of where cutting is being carried on or on the inside of the tank toward the sun or in the well hole.

This indicator head is equipped with blowers through which the gas or vapor-air mixture will diffuse and, passing through the three layers of miners' gauze which act as a flame arrestor, reach the active filment. Thus the indicator acts automatically to register the increase in gas or vapor-air concentration without the necessity of drawing sample by means of aspirator bulb or pump.

Heavy Pipe Turns Freely on Dolly While Joints Are Being Welded

Pipe dollies of unusually convenient and sturdy design have been developed by Metal Goods Manufacturing Co., 106 South Park Avenue, Bartlesville, Okla.



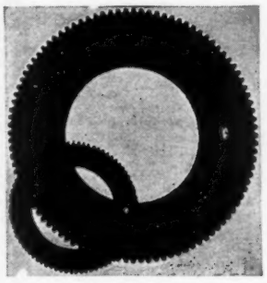
These dollies, used to support pipe while the joints are being welded together in a line, are offered in two sizes.

No. 63 is for heavy pipe, 12-in. to 24-in. inclusive. The rollers are one-piece castings bored to receive hardened-steel snap shells which run on roller bearings. The bearings are held in the rollers by dirt shields pressed into each end. The bearings run on steel bushings which are held in the frame by bolts passing entirely through both flanges of the frame. The rollers are easily adjustable in the frame for accommodating different sizes of pipe. The frame is made of steel. Bearings are packed with grease. The entire dolly is painted yellow to reduce loss in the field. Even heavy pipe turns very freely when supported on these dollies, which weigh about 29 lb.

No. 43 is for light pipe, 8-in. to 10-in. The rollers are steel, fabricated by electric welding, and run directly on bolts passing through the frame. The entire dolly is painted yellow. This is said to be an especially handy dolly for use on pipe within its size range. It weighs about 13 lb.

Heavy-Duty Clutch Facings Have Integrally Molded Gear Teeth

Gatke Corp., Chicago, announces heavy-duty clutch facings with integrally molded gear teeth which eliminate the old method of assembling friction facings on metal backing plates. The teeth are molded the full thickness of the facing, greatly increasing the wear area and eliminating wear to the housing.



The Gatke molded asbestos material is said to combine great strength and heat conductivity with the added advantage of long service life and powerful, but smooth, nongrabbing action at all operating temperatures.

Teeth are molded to accurate dimensions, and faces are ground to close tolerances. The facings are furnished in all sizes up to 30-in. diameter.

Eastman Type M Drift Indicator Is Radically Different in Design

To eliminate the developing of photographic drift-indicator records in solutions the Eastman Oil Well Survey Co., Dallas, Tex., and Long Beach, Calif., is manufacturing a new Type M drift indicator which is radically different in design. It records on light sensitive paper that can be loaded and unloaded in daylight. The instrument is small and compact and can be handled easily and quickly.

The mechanism incorporates an arrangement whereby the inclination of the well is recorded by a strong light beam directed through the plumb bob onto the light sensitive paper printed with concentric circles, each of which represents a degree.

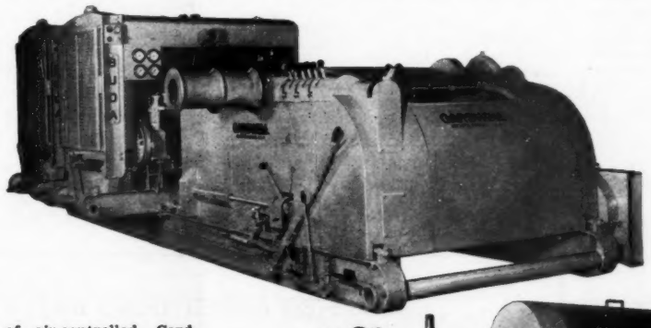
The instrument is run into the well, in a new Eastman streamlined barrel, on piano wire or sandline or is dropped to the bottom just before the drill pipe is pulled to change bits. The barrels are supplied with interchangeable connections for all operations and small enough to run through tool joints in 3½-in. regular A.P.I. drill pipe.

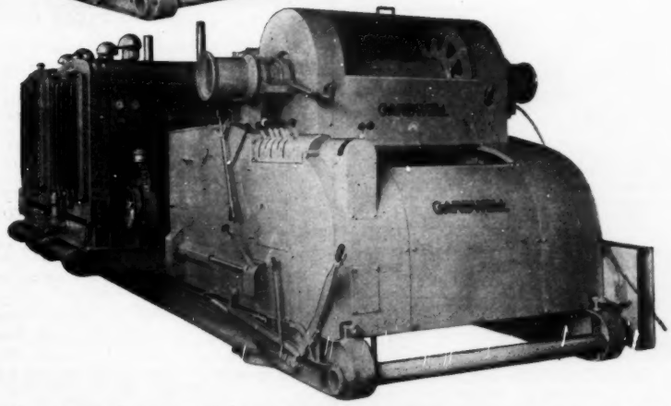
Although not photographic in principle, the new Type M drift indicator embodies the important advantage of the photographic method of recording. This drift indicator furnishes a positive reading when the instrument is on bottom and quiet. In moving, a blurred or blank record will be the result and erroneous data can be detected, saving much lost time caused by misleading readings.

The drift angle off vertical only is available with the new Type M indicator. Directional drift-angle surveys are available with Eastman single-shot and multiple-shot survey instruments.

CARDWELL SPEED DRIVE IS FEATURE OF NEW DRAW WORKS

Cardwell Manufacturing Co., Inc., Wichita, Kans., announces its new Model Y twin-engine draw works. A feature is the Cardwell Speed Drive, consisting of air-controlled, Cardwell-built friction clutches. This special drive makes it possible to change from any one of 12 speeds without stopping the pump, rotary table or hoisting operations. Air controls also operate the automatic cathead, rotary-table-drive friction clutch and slush-pump drive. Dual air compressors are standard equipment.





There are no engine-power takeoff clutches used in this draw works, as each engine drives individually to the Cardwell Speed Drive friction clutches. Both engines may be used to either or both the draw works and pumps. Either engine may be used to the draw works or the pump. The same line pull is developed by either one or two engines, but when two engines are employed the speeds are doubled. If one engine fails, the other engine will pull the load of the drill pipe, but at one-half the speed of two engines.

The rotary table is driven from a friction clutch through a gear box to eliminate the unnecessary running of chain and sprockets. Rotary-table speeds vary from approximately 20 to 200 r.p.m., even when either or both engines are employed at full speed on the pump.

Cardwell new-type, single-adjustment, fully equalized, dual safety brakes will hold the full-capacity load should one brake fail. Brakes are controlled by ratcheted hand lever, easily set for steady drilling feed.

The sand-line drum assembly is offered as an optional item and is interchangeable with cathead-shaft assembly on the single-drum draw works. The complete draw works and engines may be hauled on one truck.

Model Y is recommended for rotary drilling to 8,000 ft. with 3½-in. drill pipe and to 6,000 ft. with 4½-in. drill pipe.

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FOR SALE Oil and gas leases and small production located in Kentucky shallow field, also tracts of proven Fluorspar and zinc deposits. Reports on request. W. P. HARLEY, Bowling Green, Kentucky.

OIL Leases, Forest City Basin, N.E. Kansas 40-acre tracts and drilling blocks. H. Y HAYNES, Grantville, Kansas.

Leases and Drilling Blocks

NEW MEXICO
STATE OIL AND GAS LEASES
40 acres and multiples thereof. In the Hot Spots. Buy direct. Save those dollars. No middle man to pay; no salesman to bother you! Twenty years in the business without a complaint. Write for information.
HARRY S. WRIGHT
New Mexico State Lessee
Wright Bldg., Farmington, New Mexico

WEST TEXAS OIL LEASES
AND ROYALTIES
If you wish to buy or sell producing or non-producing oil leases or royalties located in West Texas or Eastern New Mexico, Address:
AMERICAN NATIONAL BROKERAGE CO.
Post Office Box 516
Levelland, Texas.

TEN year leases covering four structures, Ky-Tenn shallow field; 10 cent rentals, no drilling obligations, very shallow production, no proration, good roads. N. M. Sauls, Geologist, Cookeville, Tenn.

NEW MEXICO
Oil and Gas Leases and Royalties.
ROY G. BARTON, Hobbs, N. M.

ROCK asphalt mine prospect, Uvalde County; will sell or lease, favorable terms. Lewis Smyth, Uvalde, Texas.

SCATTERING SECTIONS OIL AND MINERAL LANDS in several West Texas counties, ripe for development. Will sell or lease reasonably. Would cooperate liberally with reliable developers in equipment and financing. STRATTON, Pecos, Texas.

EAST Texas oil leases. $2.00 acre. Near test and large Co. holdings. L. Lahm. 2931 Missouri Ave., St. Louis, Missouri.

Investment Wanted

MANUFACTURER or Sales organization to distribute exclusively, a new, radically different, drill bit proved 25% to 65% more efficient than the fish tail, in all formations and depths. Liberal terms. Kless, 414 Stratford St., Houston, Texas.

Legal Blanks

BURKHART'S legal blanks and general forms serving Mid-Cont. oil field since 1908—Okla. Kans. N. Mex. Tex. Ala. Ark. Fla. Ga. Ill. Ind. Ky. La. Mich. Miss. Mo. Neb. N. Dak. Tenn. Wyo. Free catalog, samples on request. Burkhart Ptg. & Sta. Co. 115 S. Cinn. Tulsa, Oklahoma.

Financing

JOHN MORRIS, Box 5411, Philadelphia, studied records 5000 financial houses. Found only 191 buy new issues. $4.00.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

PURCHASERS AND DISTRIBUTORS
PRODUCING ROYALTIES
Registered with S. E. C.
INVESTMENT ROYALTIES, LTD.
Ramsey Tower, Oklahoma City, Okla.

Survey Service

REMEMBER EAST TEXAS
When all other methods fail, employ my divining or dowsing method. If oil exists this method finds it. Faults, broken treacherous areas accurately defined. Our Watson #2, first producer Wilmington, Calif. field, located by this method. More reliable than mechanical geophysics. Ask any unbiased oil authority. Many years' experience. A wise man investigates. George Miller, 1548 Post, Torrance, California.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CAPITAL SEEKERS
Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

Situations Wanted

GEOLOGIST, Ph.D., with major company, independent, and consulting experience, can also handle leasing, drilling, and geophysical work. Young, married, excellent references, desires good job anywhere. Box K-692, The Oil and Gas Journal, Tulsa, Oklahoma.

ASS'T. CHIEF OIL DISPATCHER, currently and for past 9 years with major company, desires change; widely experienced; excellent references. Address Box K-691, The Oil and Gas Journal, Tulsa, Oklahoma.

REFINERY EXECUTIVE thoroughly trained and experienced in design construction and operation of refineries and the manufacture of all products. Efficient, energetic, diplomatic. Desires permanent connection or design construction and operation on partnership basis. Now employed. Box K-675, The Oil and Gas Journal, Tulsa, Oklahoma.

REGISTERED ENGINEER with over 15 years nation-wide experience with prominent manufacturer of oil field equipment, desires connection with progressive concern. Experienced in sales and service work as an executive in charge of design. Address Box K-693, The Oil and Gas Journal, Tulsa, Okla.

YOUNG Refinery Tech. now employed by major oil Co. desires change. Several yrs. experience in management of absorption, polymerization, treating, and stabilization plants. Also lab and pilot plant work. College grad. with post-grad. work in Petrol. Refining. Box K-676, The Oil and Gas Journal, Tulsa, Oklahoma.

EXPERIENCED chemical engineer now employed desires position with progressive firm. B.S. degree in engineering. 12 years practical experience processing, management and refining operations. Qualified refinery engineer and Supt. Can furnish references. Address Box K-672, The Oil and Gas Journal, Tulsa, Okla.

PETROLEUM Engineer: Young production engineer experienced in Mid-Continent desires position as engineer with reliable company or independent. Now employed but desires change. References. Box 670, The Oil and Gas Journal, Tulsa, Oklahoma.

DRAFTSMAN—Piping, Pressure Vessels, Oil Refinery and Chemical Plant Layout. Checker and Squad Boss experience. 15 years. Address Box K-681, The Oil and Gas Journal, 415 Lexington Ave., New York.

GRADUATE Engineer 12 years' experience all phase refinery construction, maintenance, design and estimating. Capable supervisor. Now employed by major oil company, but desires change. References. Box K-680, The Oil and Gas Journal, Tulsa, Oklahoma.

PRODUCTION AND DRILLING SUPERINTENDENT with several years' major company experience would like to join independent company, drilling contractor or individual. Can take full charge of your operations. Address Box K-642, The Oil and Gas Journal, Tulsa, Okla.

Help Wanted

MANUFACTURER'S SALES REPRESENTATIVE, acquainted with drilling operations along Gulf Coast, wanted to sell boiler steam equipment. Must have general knowledge of drilling and previous oil well supply field experience. Address Box K-674. The Oil and Gas Journal, Tulsa, Oklahoma.

Mailing Lists

ROYALTY Owners, Oil Investors, Unit Holders, Stockholders in Oil, Royalty and Mining Companies. Personnel lists of every branch of oil industry. All by states. We buy or swap lists. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Okla

For Sale—Maps

R. B. ROBINSON MAPS
Jackson, Miss. 3-Hart Bldg., Across Street from Heidelberg Hotel. Ownership maps All Over Mississippi.

1940 OIL AND GAS FIELD MAP
Texas, Eastern New M. Price $1.00.
Wildcat Map $3.00 Published monthly.
ZINGERY OIL MAP CO., Fort Worth, Tex.

CLASSIFIED ADVERTISING RATES

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgment is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times
3 Lines	$1.05	$1.80	$2.55	$3.30
4 Lines	1.40	2.40	3.40	4.40
5 Lines	1.75	3.00	4.25	5.50
6 Lines	2.10	3.60	5.10	6.60
7 Lines	$2.45	$4.20	$5.95	$7.70
8 Lines	2.80	4.80	6.80	8.80
9 Lines	3.15	5.40	7.65	9.90
10 Lines	3.50	6.00	8.50	11.00

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	1 time	$5.00
1 Inch	13 times	4.50 per inch
1 Inch	26 times	4.00 per inch
1 Inch	52 times	3.50 per inch

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

CLASSIFIED ADVERTISING

Equipment Wanted

I WANT to buy 3 to 5 thousand feet good used 3-inch drill pipe. Must be good. Will pay cash. H. E. Young, 204 Grand Theatre Bldg., Centralia, Ill.

WANTED used compressor for natural gas. Jas. W. Knight, 1965 Penobscot Building, Detroit, Michigan.

WANTED to purchase or lease LUBRICATING OIL REFINING PLANT in operation, railroad siding, daily capacity about 5000 gals., with successful sales organization, location North or Middle Atlantic Coast preferred. Detailed information. Box K-690, The Oil and Gas Journal, Tulsa, Oklahoma.

For Sale—Equipment

ALMOST-NEW Power-Equipped Guffey "45" Portable Draw Works. 150 H.P. WOKU Waukesha Engine. Received as trade-in on larger unit. Used on 11 wells. Thoroughly checked, gone over. New guarantee. On display our Okla. City plant. Offered at a big saving! JONES, SHELBURNE & GUFFEY, Inc., Petroleum Bldg., Okla. City, Oklahoma. Phone 2-4153.

FOR SALE

10,000 Ft. 2½" seamless tubing, used in flowing wells only.

10,000 Ft. 7" O.D. 26# seamless casing, once run.

15,000 Ft. 4½" O.D. seamless drill pipe equipped with both regular and full hole tool joints.

In addition to the above we have 20,000 Ft. screw line pipe in Oklahoma; also drilling rig capable of drilling to 6500 feet, complete stock of line pipe, casing, drilling and pumping equipment.

Wire, Write or Phone for Prices.

Louisiana Iron & Supply Co.
Shreveport, La.

THREE THOUSAND BARREL REFINERY for sale, over sixty thousand barrels storage, about six miles four inch pipeline. Write TOWER REFINING CO., 612 Santa Fe Bldg., Dallas.

For Sale—Equipment

For Sale—Equipment

For Sale—Equipment

LIQUIDATING BARNSDALL REFINERY—OKMULGEE, OKLAHOMA

Will Sell All or Any Part
Prices Quoted Where Located or f.o.b. Cars
—Send us your Inquiries—

New, Complete Inventory Will Be Available Immediately

Send Us Your Name and Address

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry and H. J. Galamba
Riverview at Second, Kansas City, Kansas

Robt. W. Duden
2100 S. Union, Tulsa, Oklahoma

FOR SALE: 7 ft. x 20 ft. Butane welded storage tanks 125# WP, capacity 6000 gallons. I.T.I.O. Co., Bartlesville, Okla.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St., Cincinnati, Ohio

LONGYEAR Rotocore truck mounted with 45-foot derrick attached, 7¼ x 10 Gardner Denver V-Belt driven powered pump all roller bearings. Complete with slips, blocks, kelly lines and tools ready to drill with or without drill stem. Address Chamber of Commerce, Electra, Tex.

FOR SALE: At Oklahoma City, 1 Muskogee Model "B" skid type well service machine with PA-100 International Motor. I. T. I. O. Company, Bartlesville, Okla.

4,000' of 8¼"—32 lb. lapweld casing.
3,200' of 7"—24 lb. lapweld casing.
1,100' of 4"—16.60 lb. seamless drill pipe.
P. O. Box 1360. Phone 312. Seminole, Okla.

FOR SALE—Refinery in Central Kansas. Well established, doing good business as books will show. Entering other business. Box 222, Chase, Kansas.

35,000' 10"—32# P.E. seamless line pipe
45,000' 10"—41# P.E. lapweld line pipe
All beveled for welding
6,000' 10"—short collar 40# casing
6,000' 10"—long collar 40# casing
8,600' 4"—11# 10-thd. suitable to run in 3,000' strings, or use for line pipe

ALL THE ABOVE LISTED PIPE IS STRICTLY #1 AND READY TO GO

CENTURY PIPE & SUPPLY COMPANY
900 N. MAIN ST., FORT WORTH, TEX.
Phone 6-2713

FOR SALE
Following used lapweld casing:
475'—15½"—70#
1625'—12½"—50#
2350'—10" —40#
2000'— 8¼"—32#
4000'— 5⅝"—17#
All of above casing in good condition
Also have for sale 1—45C Star and 1—49C Star Drilling machines in exceptionally good condition, completely equipped.
NO DEALERS
Bryan Petroleum Corporation
410 Beacon Bldg., Tulsa, Okla.

ONE "GASO" Main Line Oil Pump 4 x 12—Good Condition—Cheap. Write Box 372, Healdton, Oklahoma.

FOR SALE: Star #28 beam steam machine lines and tools complete. Box 592, Emporia, Kansas.

916 C.F.M. Ingersoll Rand XRB 14" x 14" x 14" Tandem Duplex Compressor 50# Pressure with 100 HP GE 2200 Volt Motor Oil Switch and Starter Completely Assembled on Structural Steel Frame. Absolutely first-class condition and in operation. $1500.00 FOB Houston. Banks Moreland Company, W-61763, P.O. Box 1764, Houston.

TRACTORS
Caterpillars, crawler type, size "35," $375; size "65" with nigger-head winch $750; Caterpillar RD8 with bulldozer $2000; Allis-Chalmers Model L with bulldozer $1750. Guaranteed, slightly used. O. C. Evans, Mt. Sterling, Ky.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Geophysical Service

HOMER L. FITCH, GEOPHYSICIST AND LOCATION ENGINEER
WHY drill dry holes? Our method only locates structures which contain oil or gas. Locations made by us will produce or no pay. Drawer 711, Brownsville, Texas.

New York Markets

(Continued from Page 119)

suppliers report an almost complete cessation of exports though one said that his company had shipped four tankers of lubricating oils in June and had three more scheduled for July sailing. This company reported a 31 per cent increase in lubricating-oil exports in the first 4 months of this year. It is apparent, however, from the recently issued report of the Bureau of Foreign and Domestic Commerce on exports of lubricating oils that the export market has been curtailed drastically in the last few months.

It is evident that the loss of the entire European market with the exception of Great Britain has had a seriously adverse effect on the Pennsylvania market which normally depends on exports for the disposition of approximately a quarter of its lube products, chiefly bright and steam-refined stocks. Just how serious this blow has been is shown in the recently issued report on Pennsylvania lubricating-oil inventories which showed another increase in bright-stock inventories in May. Normally inventories of bright stock are on the decline in March and never later than in April. Further indication of the severity of conditions in this area is the report that one refiner has decided to resume operations if an adequate supply of crude could be obtained at $2, off 25 cents from the current posted price.

Wax continues weak and while white and yellow scale is currently posted at 2.75 cents, shading is reported and it is possible to do some trading at 2.65 cents according to these reports. Fully refined grades, however, are reported unchanged. The position of wax is similar to that of lubricating oils in that it is largely dependent on exports for an outlet. It is the most important product of petroleum from an export standpoint in proportion to the total manufactured so that with export outlets closed, the outlook is decidedly unfavorable.

Gulf Coast Markets

(Continued from Page 119)

make definite determination of a true market difficult.

Coastal lubricating oils are moving out steadily on contracts but new demand is lagging and supplies are showing a tendency to accumulate. Quotations are being held at previous levels with no great amount of distress material in evidence.

New Tests Planned

In Section 29-18-2w5, Southwest Turner Valley, Alberta, Canada, west of the earliest crude producers, Commoil's No. 4 has secured permit to drill in LSD 9, south and east of its earlier producers. Location is on acreage of Ace Oils, Ltd.

In the west central area Independent Royalties has secured permit for its No. 1 test in LSD 7, Section 24-19-3w5. Location is ½ mile south and a little east of National Vulcan's No. 1, the most northerly test in the west-central area, and a couple of miles west of the old Home Oil Co. tract.

CRUDE-OIL PRICES IN REPRESENTATIVE FIELDS

Complete crude-price schedules are now being published in the first issue of each month. The last complete schedule was published in the July 4 issue. All changes in crude-oil-price schedules will be published completely in the first issues following the announcement of the changes. Following are representative crude-price schedules in barrels (42 gal.):

East Texas	$1.10
Conroe	1.27
Tepetate, Louisiana	1.03
Smackover, Arkansas, heavy	.73
Illinois basin	1.05
Pecos County, Texas	.78
Lance Creek, Wyoming	.77
Bradford, Pennsylvania	2.25

Gravity Schedules

Top prices include all gravities above grades designated, and low prices include all gravities below grades designated:

	Signal Hill, California*	Oklahoma, Kansas	Gulf Coast, Texas
14-14.9	$0.65	....	....
15-15.9	.65	....	....
16-16.9	.65	....	....
17-17.9	.65	....	....
18-18.9	.65	....	....
19-19.9	.69	....	$0.86
20-20.9	.73	$0.70	.88
21-21.9	.78	.72	.90
22-22.9	.82	.74	.92
23-23.9	.86	.76	.94
24-24.9	.90	.78	.96
25-25.9	.95	.80	.98
26-26.9	.99	.82	1.00
27-27.9	1.03	.84	1.02
28-28.9	1.07	.86	1.04
29-29.9	1.10	.88	1.06
30-30.9	1.14	.90	1.08
31-31.9	....	.92	1.10
32-32.9	....	.94	1.12
33-33.9	....	.96	1.14
34-34.9	....	.98	1.16
35-35.9	....	1.00	1.18
36-36.9	....	1.02	1.20
37-37.9	....	1.04	1.22
38-38.9	....	1.06	1.24
39-39.9	....	1.08	1.26
40-40.9	....	1.10	1.28

*Effective Feb. 1, 1940.

Index to Advertisers

A

Abercrombie Pump Co.
AC Spark Plug Division of General Motors Corporation
Acme Fishing Tool Co.
Air Reduction Sales Co.
Ajax Iron Works
Alco Products Division of American Locomotive Company
Allis-Chalmers Mfg. Co. 8-9
Allison, R. J.
American Blower Corporation
American Bosch Corporation
American Cable Division of American Chain & Cable Co., Inc.
American Cast Iron Pipe Company
American Hoist & Derrick Co.
American Iron & Machine Works
American Locomotive Company, Diesel Engine Division
American Meter Company
American Roller Bearing Co.
American Rolling Mill Co., The 96
American Steel & Wire Company
Armstrong Bros. Tool Co.
Armstrong Machine Works 90
Ashcroft Gauge Division 86
Athey Truss Wheel Co.
Atlas Supply Co.
Auer, C. L., and W. W.
Austin-Western Road Machinery
Axelson Manufacturing Company

B

Baash-Ross Tool Company
Babcock & Wilcox Tube Company, The
Badger & Sons Co., E. B.
Baker Oil Tools, Inc. 64
Baldwin-Duckworth Division of Chain Belt Company
Bantam Bearings Corp.
Barold Sales Division, National Lead Company 70
Barret, William M., Inc.
Bethlehem Supply Company
Bethlehem Steel Co. 21
Braden Steel Corporation
Bradford Motor Works, Inc.
Brance-Krachy Co., Inc.
Brauer Machine & Supply Company
Brewster Company, The 91
Bridgeport Machine Company, The
Bristol Company, The
Broderick & Bascom Rope Co. 82
Brown Instrument Company, The
Bruning, Charles, Co., Inc.
Buckeye Traction Ditcher Co.
Burgess Battery Co.
Butler Manufacturing Co.
Byron Jackson Co. Front Cover

C

Cable, Jo H. 100
Cameron Iron Works, Inc. 60
Cardwell Mfg. Co., Inc.
Carey Company, The Philip
Carnegie-Illinois Steel Corporation
Cast Iron Pipe Research Association, The
Caterpillar Tractor Co.
Cavins Company
Century Electric Company
Cessna Aircraft Company
Chain Belt Company
Chaplin-Fulton Mfg. Co., The 102
Chapman Valve Mfg. Co., The 4
Chemical Process Co., Inc., The
Chevrolet Motor Division, General Motors Sales Corporation
Chicago Bridge & Iron Company 23
Chiksan Tool Co. 91
Clark Brothers Company
Classified Advertising 126-127
Cleveland Trencher Company
Climax Molybdenum Company 68
Columbia Steel Company
Columbian Steel Tank Co.
Continental National Bank of Fort Worth
Continental Oil Co.
Continental Motors Corp.
Continental Supply Company, The 77
Cooper, Fred E.
Cooper-Bessemer Corp., The
Core Laboratories, Inc.
Crane Co. 7
Curtin, W. H., & Co., The

D

Darling Valve & Mfg. Co. 100
Davis Regulator Co.
Dayton Rubber Mfg. Co., The
Dearborn Chemical Co.
Dempsey-Wilson Construction Co. 94
Diamond Chain & Mfg. Co.
Diesel Power & Machinery Co.
Dodge Division, Chrysler Corporation
Donovan Boiler Works
Dowell Incorporated 24
Dragon Mfg. Co., The
Dresser Mfg. Co., The
Drilling Equipment Directory 67-91
Duff-Norton Manufacturing Co., The 106
Du Pont de Nemours & Co., Inc.

E

Eagle-Picher Lead Co. 103
Eastman Oil Well Survey Co.
Economy Electric Lantern Co.
Elastic Stop Nut Corp.
Emsco Asbestos Company 90
Emsco Derrick & Equipment Company
Enardo Foundry & Mfg. Co. 100
Ensign Carburetor Company, Ltd. 111
Ethyl Gasoline Corporation 14-15

F

Filtrol Corp.
First National Bank of Fort Worth
First National Bank in Houston
First National Bank & Trust Co. of Tulsa, The 98
Fisher Governor Company
Fluid Packed Pump Co.
Fluor Corporation, Ltd., The
Ford Motor Co.
Fort Worth Chamber of Commerce
Fort Worth Clearing House Association
Fort Worth National Bank, The
Foster Wheeler Corp.
Four Wheel Drive Auto Company
Foxboro Co., The 10-11
Franks Machine Co.
Frick-Reid Supply Corporation

G

Gardner-Denver Company
Garlock Packing Company, The 85
Gaso Pump & Burner Mfg. Co.
Gasoline Products Co., The
Gates Rubber Co., The
Gatke Corporation
General American Transportation Corporation—Terminal Division 83
General Electric Company
General Paint Corporation
General Power, Inc.
Geological Scientific Service Company, Inc.
Geophysical Service, Inc.
Gilmer Company, L. H.
Girdler Corporation, The 81
Goodall Rubber Co.
Goodrich Company, B. F., The 3
Goodyear Tire & Rubber Co.
Gott, H. P., Mfg. Co. 87
Graver Tank & Mfg. Co., Inc.
Gray Processes Corporation, The
Great Lakes Steel Corporation
Green Head Bit & Supply Co.
Greenspon's Son Corp., Jos.
Guiberson Corporation
Gulf Oil Corp. 6
Gulf States Utilities Co.

H

Halliburton Oil Well Cementing Co.
Hanlon-Buchanan, Inc.
Harnischfeger Corporation
Harrisburg Steel Corporation
Hazard Wire Rope Division of American Chain & Cable Co., Inc.
Hewitt Rubber Corp.
Hill-Hubbell & Co.
Hoard Exploration Co.
Houston Engineers, Inc.
Houston Pipe Appliance Co.
Houston Pipe Line Co.
Hughes Tool Co. Back Cover
Humble Oil & Refining Co.
Hydril Co.

I

Independent Exploration Company
Inferno Co., The 79
Ingersoll-Rand Co.
International Geophysics, Inc.
International Harvester Co.
International Nickel Company, Inc., The

J

Jadson Motor Products Company
Jarecki Manufacturing Company
Jeffrey Manufacturing Company
Jensen Brothers Manufacturing Co.
Jerguson Gage & Valve Co. 85
Johns-Manville Corporation 111
Jones Company, The S. M.
Jones & Laughlin Steel Corporation

K

Kellogg, M. W., Company, The 56
Kennedy Valve Mfg. Co., The
Kerotest Manufacturing Company
Keuffel & Esser Co.
Key Company
Kobe, Incorporated

L

Laminated Shim Company, Inc.
Landis Machine Company, Inc.
Lane-Wells Co., The 74
LaPlant-Choate Manufacturing Co., Inc.
Larkin Packer Company, Inc. 52
Layne and Bowler Co., The
Layne & Bowler, Inc. 112
Leeds & Northrup Co.
Le Roi Company 95
Lennox Hotel
Leschen, A., Sons Rope Co.
Lincoln Electric Company, The
Line Scale Co., Inc.
Link-Belt Company
Lockheed Aircraft Corporation
Lone Star Cement Corporation
Lucey Export Corporation
Ludlow Valve Mfg. Co., The
Lufkin Foundry & Machine Co.
Lufkin Rule Co. 101
Lummus Co., The 12
Lunkenheimer Co., The

Mc

McEvoy Company
McGregor Working Barrel Company
McKissick Products Corp.

M

MacClatchie Manufacturing Company 90
Macwhyte Co. 26
Magnolia Airco Gas Products Co.
Maloney Tank Mfg. Co.
Manhattan Rubber Mfg. Division
Manning, Maxwell and Moore, Inc. 86
Marley Company, The
Marmon-Herrington Co., Inc.
Marsh, James P., Corp.
Martin, John N., Mfgr.
Martin-Decker Corp.
Mayfair Hotel
Medart Company
Meehanite Research Institute
Merco Centrifugal Co.
Merco Nordstrom Valve Co.
Mercoid Corporation
Metric Metal Works
Mid-Continent Engineering Co., Inc.
Mid-Continent Supply Company
Midwest Piping & Supply Company, Inc., The
Miller Sand Pump Co.
Minneapolis-Moline Power Implement Company
Mission Mfg. Co., The 2
Monsanto Chemical Company
Morse Chain Company 13
Murray Rubber Company 85

N

National Bank of Tulsa 92
National Carbon Co., Inc.
National Steel Corporation
National Supply Co., The 62-63
National Transit Pump & Machine Co.
National Tube Co.
Naylor Pipe Company
Nelson, J. B. 90
New Bedford Cordage Co.
New Deal Specialty Co., The
Newman, Hender & Co., Ltd.
Non-Corrosive Products Company
Norton Company
Novo Engine Co.
Nugent, Wm., & Co., Inc. 101

O

O.C.S. Mfg. Co., The
Ohio Injector Co., The
Oil Center Tool Co.
Oil Well Supply Company
Oliver United Filters, Inc.
Osage Metal Company
Otis Pressure Control, Inc.

P

Page Fence Association 64
Page Steel & Wire Division of American Chain & Cable Co. 18
Parkersburg Rig & Reel Co.
Parkhill-Wade
Patterson-Ballagh Corporation 110
Pease, C. F., Company, The
Peerless Pump Division of Food Machinery Corp.
Penberthy Injector Co. 51
Pennsylvania Grade Crude Oil Association 20
Perco, Inc. 73
Perfex Corporation
Petroleum Advisers, Inc.
Petroleum Electric Power Association 88
Petroleum Rectifying Company 5
Phelps Dodge Refining Corporation
Pittsburgh-Des Moines Steel Company
Pittsburgh Equitable Meter Co. Inside Front Cover
Pittsburgh Steel Company
Plymouth Cordage Co.
Powell, Wm., Co., The 59
Price Co., H. C.
Pritchard, J. F., & Co.
Pure Oil Co. 19

R

Reading-Pratt & Cady Division of American Chain & Cable Co.
Rector Well Equipment Co., Inc.
Reda Pump Co.
Reed Roller Bit Company
Regan Forge & Engineering Co.
Reilly Tar & Chemical Corporation 102
Republic Rubber Division of Lee Rubber & Tire Corp.
Republic Steel Corporation 16
Rockford Drilling Machine Division of Borg-Warner Company
Roebling's Sons Company, John A.
Ryerson & Son, Inc., Joseph T.

S

Schlumberger Well Surveying Corporation
Security Engineering Co.
Seismic Explorations, Inc.
Seismograph Service Corp.
Shafer Bearing Corporation
Shand & Jurs Co.
Shell Oil Company, Incorporated 17
Sinclair Refining Company (Inc.) 22
Skinner Co., M. B.
Smith, A. O., Corporation
Smith Company, E. M.
Smith Company, Howard
Smith, H. C., Tool Co. 91
Smooth-On Mfg. Co., Inc.
Socony-Vacuum Oil Co., Inc.
South Chester Tube Co.
Southwestern Gas & Electric Company
Spang Chalfant, Inc.
Spang & Company
Sperry-Sun Well Surveying Co.
Spicer Mfg. Corp. 87
Standco Brake Lining Co. 90
Stanley Belting Corporation
Star Drilling Machine Co., The
Stearns-Roger Manufacturing Co.
Steel Founders' Society

T

Taylor Forge & Pipe Works
Taylor Instrument Companies
Technical Oil Tool Corporation, Ltd.
Texaco Development Corporation
Thermoid Company
Thornhill-Craver Co., Inc.
Timken-Detroit Axle Co.
Timken Roller Bearing Company
Timken Roller Bearing Company, Steel and Tube Division
Tobin, Edgar, Aerial Surveys
Toledo Pipe Threading Machine Co., The
Trackson Company
Tretolite Company
Trinity Portland Cement Company
Tubbs Cordage Co.
Tube-Turns, Inc.
Tulsa Boiler & Machinery Co.
Tulsa Chamber of Commerce
Twin Disc Clutch Co. 86

U

Union Wire Rope Corporation
Unit Rig & Equipment Company
United Geophysical Co.
United States Rubber Company
United States Steel Corp., Subsidiaries
United States Steel Export Company
Universal Atlas Cement Co.
Universal Exploration Co.
Universal Oil Products Co. 55

V

Vickers, Inc.
Victor Products Corp.
Viking Pump Co.
Visco Products Company
Vogt, Henry, Machine Co.

W

Wall-Colmonoy Corp.
Wall Rope Works, Inc. 90
Walworth Co. 1
Warren Petroleum Corporation
Watson-Stillman Co., The
Waukesha Motor Co.
Wedge Protectors, Inc. 100
Well Equipment Manufacturing Corp.
Well Surveys, Inc.
Western Geophysical Company
Westinghouse Electric & Mfg. Co.
Wheeling Machine Products Company
Whitney Chain & Mfg. Co., The
Wickwire Spencer Steel Company
Wilson Manufacturing Co., Inc.
Wisconsin Motor Corporation
Witte Engine Works
W-K-M Company, Inc.
Worthington Pump & Machinery Corporation
Wyatt Metal & Boiler Works

Y

Young Engine Corp.
Youngstown Sheet & Tube Co. Inside Back Cover

The Oil Man's Calendar appears on Page 46